

JPRS 81397

29 July 1982

# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT

No. 230

**FBIS** FOREIGN BROADCAST INFORMATION SERVICE

#### NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [ ] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

#### PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

29 July 1982

WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 230

## CONTENTS

## ASIA

## NEPAL

- Satellite Communications Station for Nepal  
(THE RISING NEPAL, 25 Jun 82)..... 1

## PAKISTAN

- Major Telecommunications Project Being Implemented  
(DAWN, 29 Jun 82)..... 2

## SRI LANKA

- Precarious Future of Telecommunications System, Developments  
Reported  
(THE ISLAND, 23 Jun 82)..... 3

## Briefs

- New Switching System 4  
Master Exchange 4

## THAILAND

- Interior Ministry To Use Satellites in Police Communications  
(SIAM RAT, 31 May 82)..... 5

- Telephone Systems To Be Expanded  
(BAN MUANG, 16 Jun 82)..... 6

## VIETNAM

- New System Increases North-South Telephone Links  
(Pham Nien; NHAN DAN, 4 Jun 82)..... 7

|                                                                                            |    |
|--------------------------------------------------------------------------------------------|----|
| Article Describes New Telephone System<br>(Nguyen Doan; QUAN DOI NHAN DAN, 30 May 82)..... | 11 |
| Briefs                                                                                     |    |
| Radio Network in Mountain Provinces                                                        | 14 |

## LATIN AMERICA

### BERMUDA

|                                                                                                  |    |
|--------------------------------------------------------------------------------------------------|----|
| Parliament Discusses TV Programming, Other Developments<br>(THE ROYAL GAZETTE, 19 Jun 82).....   | 15 |
| New Technology Permits Lowering of Telex, Facsimile Rates<br>(THE ROYAL GAZETTE, 24 Jun 82)..... | 17 |

### BRAZIL

|                                                                                                                  |    |
|------------------------------------------------------------------------------------------------------------------|----|
| TELEBRAS Installs 2-Mile Length of Optical Fiber Cable<br>(Jose Neumann Pinto; JORNAL DO BRASIL, 29 Jun 82)..... | 18 |
| Satellite Contracts Signed With Canada, France<br>(O ESTADO DE SAO PAULO, 1 Jul 82).....                         | 22 |
| National Company Pioneering in Optical Fiber Technology<br>(MANCHETE, 3 Jul 82).....                             | 24 |
| Briefs                                                                                                           |    |
| Satellite Communications Stations                                                                                | 27 |
| Minicomputer Projects                                                                                            | 27 |

## NEAR EAST AND NORTH AFRICA

### INTERNATIONAL AFFAIRS

|                                    |    |
|------------------------------------|----|
| Briefs                             |    |
| Israeli-Lebanese Radio Cooperation | 29 |

### KUWAIT

|                                                                                                   |    |
|---------------------------------------------------------------------------------------------------|----|
| Plans for Satellite Stations Discussed<br>( 'Adil al-Ibrahim Interview; AL-WATAN, 27 Mar 82)..... | 30 |
| Gulf Cooperation in Telecommunications<br>(AL-SIYASAH, 31 Mar 82).....                            | 33 |

## OMAN

### Briefs

|                        |    |
|------------------------|----|
| Telecommunication Link | 36 |
| Telephone Exchanges    | 36 |

## WEST EUROPE

### FEDERAL REPUBLIC OF GERMANY

|                                                                                                                         |    |
|-------------------------------------------------------------------------------------------------------------------------|----|
| State Secretary on Bundespost Telecommunications Services<br>(Dietrich Elias Interview; VDI NACHRICHTEN, 30 Apr 82).... | 37 |
| Bundespost Plans To Transmit Data by Satellite by 1984<br>(SUEDEUTSCHE ZEITUNG, 15 Jun 82).....                         | 43 |

### FINLAND

|                                                                                 |    |
|---------------------------------------------------------------------------------|----|
| Satellite TV Tests Starting in Rovaniemi<br>(HELSINGIN SANOMAT, 12 Jun 82)..... | 45 |
|---------------------------------------------------------------------------------|----|

### FRANCE

|                                                                                                                            |    |
|----------------------------------------------------------------------------------------------------------------------------|----|
| Financing Seen as Key to CIT-ALCATEL-India Contract<br>(Eric Leboucher, Eric Lecourt; L'USINE NOUVELLE,<br>27 May 82)..... | 47 |
| Telecommunications Study Center Makes Technology Available<br>(Nicole Grange; L'USINE NOUVELLE, 27 May 82).....            | 50 |
| Thomson Division Steps Up Underwater Detection Development<br>(G. Bidal; ELECTRONIQUE ACTUALITES, 14 May 82).....          | 54 |
| Matra Strives To Be Top Domestic Producer of Terminals<br>(Eric Sorlet; ZERO UN INFORMATIQUE HEBDO, 17 May 82).....        | 57 |
| CIT-Alcatel, India Sign FR 3 Billion Contract<br>(LES ECHOS, 17 May 82).....                                               | 59 |
| Briefs                                                                                                                     |    |
| Thomson Develops Multifunction Communications                                                                              | 61 |

## SATELLITE COMMUNICATIONS STATION FOR NEPAL

Kathmandu THE RISING NEPAL in English 25 Jun 82 pp 1, 8

[Text]

Kathmandu, June 24:

A new dimension will be added the international communication service of Nepal after the completion of the satellite communication earth station project jointly undertaken by His Majesty's Government and the British Government, reports RSS.

Establishment of a standard 'b' earth station at ward no one of the Matatiratha village panchayat, construction of an international telecommunication building, an automatic telex exchange with 512 lines and installation of the equipment for the same are some of the major works under the project.

Installation of the equipment is completed and the earth station building is also nearing completion.

Testiner various sub-systems is continuing.

Tests of the systems lin-

king it with the earth station will be conducted in July-August. All other works are also expected to be complete by September 26 this year.

Construction of the international communication building at Tripureswor is almost complete and the electrical equipment for the earth station are being installed.

Installation of the 512 telex exchange lines is complete and tests are being conducted it.

The earth station with a maximum of six channels will have direct telecommunication link with Europe, Africa, the South West Asian countries, Japan and Australia through the Intelsat-5 earth satellite over the Indian Ocean from September-October this year.

Although direct telecommunications link will be established with Japan, Hongkong, the United Kingdom and India only through the earth satellite initially, telecommunications service with rest of world is expected to improve considerably because of the link with those countries.

The ultra modern telex exchange is expected to contribute for the expansion of the telex facility. Fully automatic international telex service will also be made available on to the users in Nepal.

Thus the users will be able to dial direct almost all the telex numbers in the world.

The British Government has made available a grant assistance of about 3.1 million sterling pound and Nepal telecommunications corporation has spent about 10 million rupees for the project.

## MAJOR TELECOMMUNICATIONS PROJECT BEING IMPLEMENTED

Karachi DAWN in English 29 Jun 82 p 4

[Text]

A major telecommunications project costing dollar 236.5 million is being implemented by the Pakistan Telegraph and Telephone Department to improve and expand local, long-distance and international telecommunications facilities and services.

The Asian Development Bank has approved dollar 29 million loan for the phase of the overall investment programme and will finance two components. They are (i) a high-capacity microwave system linking Karachi with Peshawar; and (ii) subsidiary routes to small exchanges and long-distance public call offices in unserved rural areas.

Out of the total cost of dollar 236.5 million, the foreign exchange component will be of the order of dollar 120.5 million exclusive of contingencies, or dollar 135.5 million including contingencies.

The foreign exchange cost of the project is proposed to be financed, apart from ADB's 29 million dollars, by the World Bank to the extent of dollar 40 million, the Federal Republic of Germany dollar 30 million, Japan 31 million and Pakistan Government and other sources dollar 5 million.

The whole project is spread over 5 parts covering local network improvement and expansion, im-

provement and expansion of long distance telecommunications facilities, extension of international telecommunications facilities, expansion of telex and telegraph facilities and data processing facilities etc.

The Asian bank will finance installation of high capacity microwave system linking Karachi through Quetta to Peshawar; subsidiary routes to small exchanges and long-distance public call offices in rural areas.

The high-capacity microwave system will provide a reliable telecommunication route between the northern and southern areas of Pakistan, linking provincial capitals, and will assist in the integration of remote areas with the rest of the country. The subsidiary routes component will primarily be a rural service and will directly connect 282 local exchanges in small town throughout Pakistan while the public call office component will provide public telephone facilities in rural areas currently without such a service. When completed, it will provide an estimate 1.6 million rural dwellers with access to modern telecommunications facilities for the first time.—PPI

CSO: 5500/5857

## PRECARIOUS FUTURE OF TELECOMMUNICATIONS SYSTEM, DEVELOPMENTS REPORTED

Colombo THE ISLAND in English 23 Jun 82 p 3

[Text]

SRI LANKA's Telecommunications System will be in a precarious position because nearly 50 per cent of the most qualified and experienced personnel in the Telecommunications service are moving to highly paid Middle East jobs.

The Minister Posts and Telecommunications Mr. D. B. Wijetunga, informed the President Mr. J. R. Jayewardene and the Cabinet of Ministers, the seriousness of the problem faced by the Sri Lanka Government in this regard.

The spokesman for the cabinet, Minister of State Mr. Anandatissa de Alwis, said that Minister Wijetunga in a report presented to the cabinet pointed out that the situation in this regard "appeared to be worsening as there is an indication that recruitment for jobs abroad has been intensified". During the first week of this month interviews for recruitment had been held in Colombo the Minister reported, of Telecommunications Engineers, Superintending Engineers and engineering labour grades. It is also reported that 150 officers including Chief Engineers and Superintending engineers have appeared for interviews for vacancies in Saudi Arabia and the United Arab Emirates. It is expected that around 60 are likely to be selected.

Minister Wijetunga pointed out the experience of the Department was that the more capable and trained officers are invariably selected leaving the less experienced and the newer recruits behind.

In the lower categories, it took at least three years to adequately train and qualify persons. While a crash programme for recruitment has taken place in view of the time required to adequately train persons, the department was not

able to maintain always its services at an adequate level of efficiency. The situation, Mr. Wijetunga said, has been aggravated with the introduction of modern technology and systems like Electronic Switching where the number of trained personnel was limited. The telecommunication service was being maintained under a severe strain on available manpower, the Minister pointed out.

Meanwhile, the Cabinet of Ministers gave its approval to Minister Wijetunga to go ahead with the programme of development and modernisation of the telephone system which has become necessary owing to severe congestion and the consequent development of dead lines, dropping of calls, cross connections, overhearing etc.

The following developments are to take place:

1. Install a new Master Exchange of 20,000 lines in Colombo Central to replace the 14,000 lines and provide for the heavy demand anticipated in the area.
2. Replace the existing 3,500 Strowger lines at Maradana, (Colombo) Exchange.
3. Augment the Inter Exchange Junction Circuits and replace defective junction cables.
4. Augment and replace existing Strowger lines totalling 7,000 together with transmission equipment at Havelock Town (Colombo).

The total cost of the programme is estimated to be Rs. 300 million, the foreign component of which is estimated at Rs. 250 million.

The equipment currently in use in Sri Lanka is from France and Japan. As such Sri Lanka Government wanted to confine the tenders to suppliers from these two countries.

## BRIEFS

NEW SWITCHING SYSTEM--The installation work on the new National Switching Centre has been completed and it has been commissioned. It is a transit exchange for subscriber trunk dialling. The new centre is an electronic switching system utilizing the latest computer-control technology. It cost Rs 14 million. The old National Switching Centre which was an electro mechanical crossbar type will continue to function. This centre had a technical capacity of 1,600 terminals which was fully utilised. The new centre has been commissioned with an immediate capacity of 2,900 digital/analogue trunk terminals. It has an ultimate capacity of 60,000 terminals. The new system will provide additional trunk terminals so that outstation subscribers could have access to stations which are on the S.T.D. network. Special features of this system is the substantial call handling capacity which is about ten times the number of calls its predecessor could handle and a large traffic carrying capacity which is about twelve times that of the previous system. With the commissioning of this new system the congestion which subscribers encountered in making S.T.D. calls will be eliminated. [Text] [Colombo DAILY NEWS in English 24 Jun 82 p 1]

MASTER EXCHANGE--On the recommendation of Mr D.B. Wijetunge, minister of Posts and Telecommunications, Cabinet approved a Colombo Area Telecommunications Development project, Stage 4. This will be for the supply of 30,500 lines, inter-exchange junction cables and associated transmission equipment. The Minister reported that severe congestion had led to dead lines, dropping of calls, cross connections and overhearing. Under the electronic system, when the exchange is jammed with calls automatic disconnections take place. A master exchange in Colombo Central is proposed with 20,000 lines to replace the existing 3,000 Strowger lines. Facilities at the Maradana exchange will also be augmented with the replacement of 3,500 existing strowger lines, augmentation of inter-exchange junction circuits and replacement of defective junction cables. At Havelock Town the existing 7,000 strowger lines will be augmented and replaced and transmission equipment improved. This will cost Rs 300 million with a foreign component of Rs 250 million. [Text] [Colombo DAILY NEWS in English 23 Jun 82 p 1]

CSO: 5500/5858

INTERIOR MINISTRY TO USE SATELLITES IN POLICE COMMUNICATIONS

Bangkok SIAM RAT in Thai 31 May 82 pp 1, 12

[Article: "Ministry of Interior Begins to Use Satellites to Make Contact Throughout the Country. Importance of Border Provinces Stressed"]

[Text] The Ministry of Interior is urgently improving the ministry's communications system by using satellites to provide support and to send orders from the center to locations throughout the country. The project, for which 55.3 million baht has been allotted, stresses building up national security.

A news report from the Ministry of Interior states that, at present, the Ministry of Interior has entrusted the Communication Division of the Office of the Under-Secretary of State, Ministry of Interior, with the task of preparing a plan to expand the ministry's communications system to the district level. The purpose of this is to enable all the provinces in the country to contact the districts and coordinate things with the center, including coordinating the internal activities of the administrative and police sectors.

The report stated that the communications system will be improved by increasing the number of telephones and teleprinters in the provinces so that they can be used to collect data and compile reports for the units concerned so that they can take prompt action. In particular, the border provinces that have been infiltrated by terrorists will be able to coordinate things with the military and with the other sectors concerned.

To do this, the Ministry of Interior will use a ground satellite system of communications. A main station will be set up in Bangkok and 10 smaller stations will be set up in Prachinburi, Trat, Nong Khai, Nakhon Phanom, Ubon Ratchathani, Chiang Rai, Nan, Mae Hong Son, Narathiwat and Kanchanaburi.

The report also said that this project of the Ministry of Interior will cost 55.3 million baht. Some of the money will be used to rent satellites belonging to Indonesia and some will be used to build the satellite ground station and the small stations.

11943

CNO: 5500/5854

THAILAND

TELEPHONE SYSTEMS TO BE EXPANDED

Bangkok BAN MUANG in Thai 16 Jun 82 pp 1, 16

[Article: "The Number of Telephones Will Increase By More Than 100,000 By 1984"]

[Text] Yesterday morning, the 15th, Admiral Amorn Sirikaya, the minister of commerce, gave an interview to reporters before going to attend a cabinet meeting. He discussed the activities of the Telephone Organization, saying that things are being carried on in accord with the plan and that attempts are being made to rectify [the shortcomings], especially service, which is not as good as it should be. The minister of communications said that if things are expanded too quickly, there may be problems. Thus, it is not our policy to increase the number of officials since labor costs are very high. It must be admitted that service is still not good.

Admiral Amorn said that in the Fifth Development Plan, the Economic Development Council discusses increasing the number of telephones by another 900,000 numbers. This will help satisfy demand because it will increase the number of telephones to 2 million. Besides this, there is a plan to add another 130,000 telephones by 1984. As for the appointment of a new director, Admiral Amorn asked the reporters to ask Mr Montri Phongphanit, the deputy minister of communications.

When asked whether the state enterprise officials who have made mistakes will be punished, Admiral Amorn said that "if they are transferred, I will go to [work] again." The reporters asked about the appeals by the people, who say that the number of buses has declined and that this has caused great crowding on the buses. Admiral Amorn said that he would ask Mr Wira Musikaphong, the deputy minister of communications, about this and have the problem solved.

11941

1000 0000000000

## NEW SYSTEM INCREASES NORTH-SOUTH TELEPHONE LINKS

Hanoi NHAN DAN in Vietnamese 4 Jun 82 pp 3, 4

[Article by Phan Nien, head of the Posts-Telegraph General Department: "The North-South Open Wire Communications System: a Project of Scientific and Creative Labor"]

[Text] At the start of June, 1982, following the inauguration and start-up of the Hoa Sen Satellite Communications Ground Station (August, 1980) and the Hanoi-Haiphong communications cable (June, 1981), the posts-telegraph sector completed the construction of and put into use the 66 Hanoi-Da Nang carrier communications channels of the Hanoi-Ho Chi Minh City-Minh Hai open wire communications project. From now on, the Hanoi-Da Nang communications line and the communications lines between Hanoi and Ho Chi Minh City and a number of other localities in the country will have an additional group of stable open wire communications channels.

With the formal inauguration of the 66 open wire communications channels in the Hanoi-Da Nang technical area, the number and the quality of direct north-south communication links have been markedly increased. On the average, there will be thousands of telephone calls handled each day, 46 percent of which will be directly between Hanoi and Ho Chi Minh City.

From now on, the 16 provinces along Route 1A and Route 4 will use the open wire communication lines of rather high quality for direct communications with Hanoi; the more distant provinces, such as Gia Lai-Kontum, Dac Lac, Lam Dong, Tay Ninh, Cong Bo, Dong Thap, An Giang and so forth, will establish communications with the central level through communication relays at the engineering stations. The objectives of the posts-telegraph sector is to establish direct open wire communication lines from Hanoi to the 40 provinces and municipalities and the special zone.

#### Reaching the Pinnacle of Technology

We can be proud that we have designed and constructed a long multi-channel, open wire communications system involving pairs of wires totalling 21,472 kilometers in

length, more than 40 22 to 54 meter tall supports across rivers, 138 kilometers of underground cable, 330 carrier generators of various types, 29 engineering stations and 50 security stations along the entire line that measure a total of more than 23,000 square meters.

The process of building the project has been the process of growth in all areas, especially in the field of organizing guidance and carrying out capital construction. It has also been a process of reaching the pinnacle of carrier communications technology and providing stable communications along the entire 2,080 kilometer long project.

In our country, with the assistance of the socialist countries, carrier communications technology was put in widespread use in 1956 with one channel and three channel electronic carrier generators. However, we were only familiar with small-scale projects, projects involving direct communications between two terminal carriers or two carriers with an amplifier engineering station between them.

The 2,080 kilometer long carrier information project has higher technical requirements. In the renting of telephones at any two points in the country, the parties hear each other clearly without interference and without voice distortions, communications have a high degree of reliability and there are no more than three audio relays in the entire project.

As regards the transmission of electricity, special attention has been given to placing the amplifier engineering stations at appropriate intervals in order to use the least possible electricity; not one station is below the amount of time permitted for receiving signals in order to eventually insure that the interference accumulated along the entire project does not exceed the permissible value.

In addition, by means of suitably placing the various styles of machines in the electric circuitry in order to achieve frequency band turnover and translation, the protection against audio distortion and the quality of communications have been improved.

The construction, without the assistance of foreign experts, of a project involving such complex and modern technical requirements represents a major effort and reflects the attempt to become the masters of communications science and technology by the corps of cadres and manual workers in the fields of design and construction.

The majority of the open wire system passes through the lowlands and seacoast and is able to withstand winds of 36 meters per second. The lead wires are of the 3 millimeter BCM-1 bimetallic type. The nearly 44,000 steel reinforced concrete poles 7.3 meters tall have been designed to last more than 30 years.

The shortage of electric insulators has been the greatest difficulty. The posts-telegraph sector has coordinated with the Hai Duong Porcelain Works to improve

its production techniques in order to improve the insulating properties of its insulators. As a result, it has not been necessary to import the nearly 200,000 insulators needed for the project.

Constructing systems of tall supports to bring wires across rivers, more than 10 of which involve supports nearly 50 meters tall, is a large volume of work, work that is very new to the design, construction and assembly corps of the sector. At the Tien Giang and Hau Giang Rivers, which are about 1 kilometer apart and nearly 40 meters deep, the communication line construction workers decided to lay underground cable across the rivers. With the help of the Southern Winch Corporation, the posts-telegraph sector, for the first time in its history, was able to lay these underground cables.

As regards construction, the sector has constructed 21 engineering stations which, including the space allocated for the installation of machinery, amount to more than 20,000 square meters and has made full use of existing area to deploy eight engineering stations. The provinces and local construction corporations have overcome very many difficulties to insure the virtual completion of this construction work in time to provide space for the installation of machinery.

At the terminal engineering stations, together with establishing the main communication channels, they have also established feeder lines to the long-distance switchboard. At some places, due to the shortage of feeder cable, the sector mobilized LVK-12M micro-electronic carrier generators to set up high frequency feeder lines. The sector has also advocated the automation of long-distance calls "in one direction" by establishing within each province a number of pay phones of the Hanoi automated switchboard. Along the long-distance communications line, geographical conditions are very complex and it will be difficult to maintain the wires and equipment once the project has been put in use. Therefore, the construction process has had to be coordinated with preparing the conditions needed to provide good maintenance. The nearly 50 security stations along the line are concrete buildings that were rapidly constructed by transporting pre-cast members to construction sites.

The sector has mobilized dozens of types of electronic measuring equipment, including modern machines, such as the P51A which is used to check for obstacles in lines, frequency counters and so forth for engineering stations.

The posts-telegraph sector has completed the most important work in building the Hanoi-Ho Chi Minh City-Minh Hai open wire communications project. The jobs that remain to complete the entire project and utilize it effectively are still quite large. Work must continue on completing the Da Nang-Ho Chi Minh-Minh Hai technical sector, which includes a number of main engineering stations. Due to the pressing need to provide communications support, each section of the project and each pair of wires that are completed must be put into use immediately. Therefore, formulating plans for and conducting tests of the AC electricity norms of each amplifier section and the entire line and establishing management records

for lines and equipment are necessary jobs, jobs that will lay the foundation for properly managing and maintaining the quality of communications of the entire line, jobs which the posts-telegraph sector must make every effort to perform.

Combating negative phenomena along the communications lines to insure uninterrupted communications is an important matter that must have the competent support of the various levels and sectors in keeping with the spirit of Premier's directive 230/TTg.

Improving the ability of the technical cadres and personnel to manage, regulate, command and utilize the entire communications line in exact accordance with the technical regulations and standards of the sector and defining their spirit of ownership as regards this important communications line are a basic factor in insuring that the project is operated in a manner reflecting high efficiency and high quality.

In keeping with the resolution of the 5th Congress of the Party, the posts-telegraph sector, in a spirit of self-reliance and creative labor, is steadily building a unified national communications network that is linked to the modern international communications networks and is highly efficient.

7809

CSO: 5500/5840

## ARTICLE DESCRIBES NEW TELEPHONE SYSTEM

Hanoi QUAN DOI NHAN DAN in Vietnamese 30 May 82 p 2

[Article by Nguyen Doan, the Posts-Telegraph General Department: "Our Country Largest Open Wire Communications Project"]

[Text] Since the end of May, anyone travelling from Hanoi to Da Nang has seen the 1,500 newly erected telephone poles running along National Highway Number 1. On each pole are three cross pieces supporting 12 pairs of wires. Every few dozen kilometers, these pairs of wires pass through engineering stations in order to technically process the signal by means of modern communications equipment. These comprise technical area number one, the key item of the Hanoi-Ho Chi Minh City-Minh Hai open wire communications project, which was recently completed and put into use, thereby significantly increasing the communications capability of the posts-telegraph sector. As a result of it, the number of communications channels between Thanh Hoa and Hanoi has increased from 3 to 15. Consequently, communications between Hanoi and Thanh Hoa are much more convenient and rapid. When receiving requests for long-distance calls from the agencies, enterprises and people of Thanh Hoa to Hanoi, the posts-telegraph personnel of Thanh Hoa need not waste time establishing contact with the long-distance telephone personnel of the Hanoi station but can directly connect calls to the automated switchboards in the Hanoi network. Because technical area number 1 has been constructed and put into use, the number of wired information channels between Hanoi and Vinh has increased four-fold. Vinh also has a communications line linking it directly with Da Nang and Ho Chi Minh City. The number of information channels between Hanoi and Hue, Da Nang, Quy Nhon and Ho Chi Minh City has also increased from two to five times.

That only 12 pairs of telephone lines on three cross pieces provide so many information channels to the provinces to use is due to the fact that the posts-telegraph sector has made full use of the transmission capabilities of the lines by installing multi-channel carriers along them. As a result of this equipment, on each pair of wires, in addition to transmitting a current with a frequency of 300-3,000Hz for conversation between two persons, it is also possible to convert the voices of other persons into currents that have a frequency exceeding 3,000Hz and transmit them over the same pair of wires.

When this technical area was being constructed, another technical problem was resolved. Because the voice current from Hanoi to Da Nang must be transmitted over a very long distance and would become attenuated on the transmission lines, thereby causing it to become weak and possibly even disappear, telephone conversations would not be possible if a way was not found to increase this current; therefore, amplifier stations located at specific intervals along the Hanoi-Da Nang lines are used to strengthen the audio current or high frequency current that has become weak.

However, the completion of technical area number 1 of the Hanoi-Ho Chi Minh City-Minh Hai open wire communications project only represents the completion of the key item of the project. Construction work must continue because this open wire communications project is 2,080 kilometers long, the third longest in the world. In order to put the entire project into use at its design capacity, the posts-telegraph sector must complete two more technical areas similar to technical area number 1, and this work is being carried out in a very urgent manner. Posts-Telegraph Construction Committee Number 3, although it only has a few people, has actively completed the necessary procedures, paid compensation for the land and houses of the people through which lines pass and coordinated with troops to find and disarm bombs and mines of the Americans and the puppets still remaining at construction sites. The Posts-Telegraph Design Institute worked very hard to make nearly 200 blueprints for the various wire project items, tall poles, cables for crossing rivers and station buildings. The Posts-Telegraph Supply Corporation has provided a full supply of high quality materials and transported to sites various types of multi-channel carriers, amplifiers, gauges, rectifiers, generators and electric storage batteries. The main construction units, Posts-Telegraph Projects Corporations Number 1 and Number 2, the Posts-Telegraph Concrete Materials Enterprise and the Posts-Telegraph Communications Equipment Repair Enterprise, which must carry out construction over a line that is more than 2,000 kilometers long and must cast 20,000 cubic meters of steel reinforced concrete, require 9,000 tons of cement and 7,000 tons of steel. The Da Nang to Minh Hai section requires the erection of 20,000 iron reinforced concrete poles, each of which is 7 meters long and weighs 4.2 quintals. The units made many innovations to improve their techniques and rationalize production in order to overcome numerous difficulties and maintain the construction rate. The site supervisors of Construction Committee Number 3, the Design Institute, the Capital Construction Department, the Guidance Committee and so forth have constantly been at construction sites to promptly meet emergency requirements and difficulties involving materials for construction; the other sectors and the various localities have helped the posts-telegraph sector with supplies, labor and technology for project construction. To date, more than 20,000 poles have been erected along the Da Nang to Minh Hai section and, on these poles, a cross piece with four pairs of wires has been installed, consequently, the posts-telegraph sector has linked Hanoi to Ho Chi Minh City entirely by means of open wire communications.

At present, the units participating in construction have completed virtually all of the most difficult work in the Hanoi-Ho Chi Minh City-Minh Hai open wire communications project.

In the not too distant future, once the second and third cross pieces have been installed on the poles from Da Nang to Minh Hai in the two remaining technical areas and the engineering stations have been constructed along this line, the posts-telegraph sector will put the entire project into operation at its design capacity, which consists of 66 information channels capable of providing greatly increased telephone service to the provinces of the entire country. However, over the past several years, in order to quickly realize returns from the capital that has been invested, the posts-telegraph sector has not waited for the project to be completely constructed but has, instead, made an effort to put the completed parts of the project into use. On the lines that have been constructed, workers at telecommunications centers 1 and 2 have undertaken the tasks of managing and operating equipment and protecting communication lines, thereby meeting the increasing communication needs in the leadership and guidance of production and in supporting combat and the people.

Therefore, although the entire project has not been completed, each year, by means of this project under construction, the posts-telegraph sector has quickly arranged many long-distance telephone conversations between Hanoi and Ho Chi Minh City, among the various provinces and between the provinces and districts throughout the country.

7809

CSO: 5500 / 5840

## VIETNAM

### BRIEFS

RADIO NETWORK IN MOUNTAIN PROVINCES--The Vietnam Radio and Television Commission recently held a conference in Quang Ninh Province to discuss new tasks on radio and television broadcasting in northern mountain provinces. Over the past years Quang Ninh, Lang Son, Cao Bang, Ha Tuyen, Hoang Lien Son, So La, Bac Thai and Lai Chau Provinces have established 852 radio stations and wired radio posts; installed 50,000 home loudspeakers and 4,500 public speakers. Representatives of these provinces who attended the conference have signed an emulation agreement to accelerate their propagation task for 1982 which is aimed at encouraging the people to carry out satisfactorily the two strategic tasks of national building and defense. [Hanoi Domestic Service in Vietnamese 1430 GMT 5 Jul 82 BK]

CSO: 5500/5862

## PARLIAMENT DISCUSSES TV PROGRAMMING, OTHER DEVELOPMENTS

Hamilton THE ROYAL GAZETTE in English 19 Jun 82 p 5

[Text]

Government was yesterday urged to investigate whether programmes shown on Bermuda television via satellite breached any international laws.

The call came from the Opposition Progressive Labour Party after the Hon. Sir John Sharpe, Minister of Home Affairs, could only give an assurance that no such regulations were being broken "to our knowledge".

Sir John was also rapped by the Opposition for saying that research had yet to be carried out on the implications for Bermuda of television technology now available.

Mr. Austin Thomas (P.L.P.) said he found it "absolutely incredible" that Government should make such statements when it had been inundated with information on the subject over the past two years.

The point arose during discussion of the Public Service Broadcasting Regulations 1982. Sir John said that when the public broadcasting act had been changed so that powers were vested in the Minister of Home Affairs rather than the Governor, the necessary changes in the regulations had not been made.

"These regulations are a consequence of those changes in the act, but otherwise they are exactly the same as those already on the books," he said.

Mr. Frederick Wade, Opposition spokesman on Home Affairs, stressed the importance of Government keeping up to date with advances in broadcasting. Certain events were now shown on Bermuda television via satellite.

"Are these satellites being used in accordance with international law?" he asked. "Or are laws being breached, and so putting our good name internationally at risk?"

Mr. Wade said the regulations made no provisions for latest technological advances in broadcasting, and asked how Government planned to deal with such changes. He was also concerned at how Government had been involved with considering the ZBM/ZFB merger when the broadcasting regulations made it clear authority was vested in the Governor until yesterday's legislation.

Mr. Wade said that political broadcasting was another controversial area. But the guidelines for such programmes were drawn up by the Broadcasting Commissioners, a group who were in the main Government supporters. He felt such rules should be made by Parliament.

Sir John said there were no breaches of international regulations regarding satellite transmissions "to our knowledge". There had been no complaints from U.S. authorities. He agreed with Mr. Wade that the broadcasting regulations did not cover latest advances. "This is something we will have to do, but we have simply not got the expertise locally," he said.

He admitted there was an "area of doubt" over the role of Government and the Governor in the case of the ZBM/ZFB merger. But both stations had conformed to the regulations. If Government had not approved, it could have made the legislation being considered retroactive and so would have had the necessary powers.

Referring back to advances in broadcasting, Sir John said: "We have got a lot of work to do on this."

If that was so, asked Mr. Thomas, why had money been spent on bringing in a Canadian expert to assist Government more than a year ago? And what had happened to

the wealth of information that had been provided to Government.

"To come today and say this basic groundwork is only now being pursued, I find absolutely incredible," he said. "Is it because Government does not want to move into the 21st century? What is the problem?"

Mr. Wade said another problem area was that of home videos. There had been cases in the U.S. of film companies protecting their rights. And a representative of one company had been reported in Bermuda as saying his firm would sue anybody found taping films illegally.

"What is Government doing to make sure our citizens do not find themselves in trouble with multi-national companies?" he asked. "A video is becoming as popular in the home as a record player."

Sir John said Government had referred the matter of videos and taping films to the Attorney General. He had advised that taping might well be illegal but the difficulty would be for a company trying to find somebody to take to court.

The regulations were approved.

CSO: 5500/7551

# NEW TECHNOLOGY PERMITS LOWERING OF TELEX, FACSIMILE RATES

Hamilton THE ROYAL GAZETTE in English 24 Jun 82 p 15

[Text]

CABLE and Wireless is to announce across the board reductions in international telex rates for Bermuda subscribers.

The cuts, due to be unveiled tomorrow, will reduce the cost of some calls by as much as 26 percent and are due to take effect from July 1.

A Cable and Wireless spokesman told Business Week the biggest reduction would be on traffic to Britain which is currently charged at the rate of \$2.70 a minute. The new rate will be \$2.

Telex calls to the United States and Canada are to come down 15 percent and will cost \$1.70 a minute under the new tariff list.

Along with the new prices, Cable and Wireless will introduce a new charging structure, which will allow costs to reflect more accurately the time subscribers take to send a message. Charges will be calculated in six second increments rather than the present method of one minute minimum periods.

The company's Bureaufax service — the transmission of manuscript and photograph facsimiles — will also be offered more cheaply from the end of the month.

Charges for transmissions to the U.S. and Canada will be reduced to \$6 from \$8 per page while prices for Britain and Europe will drop to \$7.50 from \$10 a page.

The new prices and charging structure come in the wake of a recent Cable and Wireless policy decision to make its overseas branches fully accountable for profits.

International telex traffic from Bermuda has been growing at the annual rate of about 12 to 15 percent and current volume is thought to be in excess of two million minutes per annum.

Said the company's spokesman: "Obviously this increasing volume has allowed us certain economies of scale and this is one reason why we are now able to reduce prices. Another reason is that the new technology has helped bring prices down."

CSO: 5500/7551

## BRAZIL

### TELEBRAS INSTALLS 2-MILE LENGTH OF OPTICAL FIBER CABLE

Rio de Janeiro JORNAL DO BRASIL in Portuguese 29 Jun 82 p 21

[Article by Jose Neumann Pinto: "Brazil Uses Optical Fibers for Telephones"]

[Text] Sao Paulo--With the installation on July 1 of a cable completely developed in the laboratories of Campinas State University (UNICAMP) and TELEBRAS [Brazilian Telecommunications, Inc], Brazil enters the area of optical fiber communications with its 3,200-meter connection between the telephone exchanges of Jacarepagua and Cidade de Deus in Rio.

The cable contains four optical fibers and was manufactured with technology developed in the laboratories of the UNICAMP Physics Institute and the TELEBRAS Research and Development Center (CPqD) and coated by Condugel, a Brazilian corporation. With a capacity of 480 telephone communications channels in an experimental phase, it inaugurates a revolutionary form of telephone signal transmission by laser beams in Latin America.

#### Advantages

With less than 2 centimeters in diameter, the cable is capable of carrying information equivalent to that which can be carried by a minimum of 920 copper wires of a conventional system. This means that in order to carry the same information the conventional cable would have a diameter of almost half a meter, according to information from the chief adviser of the planning department of the TELEBRAS CPqD in Campinas, Antonio Pedro Coco.

"The two main advantages of optical fibers over conventional copper wires are the low signal loss because of the high frequency that can be obtained by laser beams (making it unnecessary to have repeater stations every kilometer of wire) and the high rate of transmission which means a larger information carrying capability," explained Professor Ramakant Srivastava, in charge of the optical fiber project of the Gleb Wataghin Physics Institute at UNICAMP.

Moreover, concluded Professor Coco, the signal that will be tested between the Jacarepagua and Cidade de Deus exchanges will be much clearer, and the cable, which will allow the use of the complete system, will be installed under normal conditions (under streets, sewer mains, and so forth).

## National Industry

Professor Srivastava explained that national industry is already prepared to make the equipment needed for transmission by optical fibers, thanks to the pure and applied research by his group and to the development of technology by physicists of TELEBRAS. He believes that within a year and a half it will be possible to make the multimode type optical fibers in Brazil, since its technology is already known.

"Today, unfortunately, the optical fiber production process cannot be entirely national because we obtain it by means of purified quartz rods (nearly half a meter long) sold (at nearly \$50 each) by a German company which has a world monopoly of the quartz purification technology. Brazil is the largest producer of quartz in the world. The German company buys our quartz, purifies it, turns it into rods and then sells it to Brazil at a very high price. We want to learn the technology of producing fibers from unpurified quartz and I believe that by 1983 we can achieve that," said the physicist.

The chief adviser of the planning department of the TELEBRAS CPQD--located on the highway which links Campinas and Mogi-Mirim near Barao Geraldo, where the UNICAMP campus is located--Antonio Pedro Coco explained that the system requires, in addition to the cable, a signal converter (multiplexer), which converts the voice (analogical signal) into an electrical signal and then transforms it into light (optical signal), a laser ray emitter and a photodetector and emitter. These pieces of equipment were developed in Campinas and can already be made in Brazil, providing some industry becomes interested in obtaining their technology.

"The difference between Brazil and other Latin American countries is this: We have been developing a project for obtaining our own technology in this field for 7 years. Meanwhile, the Argentine Government has just bought 7,500 kilometers of optical fibers for \$120 million from Japan for the installation in Buenos Aires of the largest system of that type in the world. Up to now it has not been installed and if the government had given the money to the physicists, the country would have its own technology in 3 years," said Professor Ramakant Srivastava.

## Sergio Porto Brought the "Know-How"

Physicists confirmed theoretically the efficiency of optical fibers as an information carrying system in 1966 but it was not until 1970 that the Corning Company, a great multinational company which makes glass, managed to make an optical fiber industrially feasible.

The interest on the subject in Brazil was imported by Rio physicist Sergio Porto. Invited by the founder of UNICAMP, Zeferino Vaz, to return to Brazil, the physicist, one of the greatest international specialists in laser rays, brought to Campinas the know-how he acquired in the laboratories of Bell Telephone and the University of Southern California.

In 1975, Sergio Porto brought Indian physicist Ramakant Srivastava from the United States, the only PhD left of the founding group of the optical fiber project in the Gleb Wattaghin Physics Department of UNICAMP. In 1976, TELEBRAS, interested in obtaining its own technology in the field, began to finance research by the UNICAMP group (this year, for example, an agreement stipulates 76 million cruzeiros in TELEBRAS funds for research alone, without counting equipment). Since then, the group has been working uninterruptedly in the five laboratories installed in the Barao Geraldo Campus.

#### Fibers are Made of Pure Silica

An optical fiber is a system of two cylinders of special glass obtained from a very pure silica. The inner cylinder is 50 microns in diameter (a micron is the one-thousandth part of a millimeter) and the outer is 125 microns in diameter (which means that its thickness is that of a human hair).

There are the dimensions of the multimode system, which has already been developed in Brazil. In the "monomode" system, which is being studied by the UNICAMP physicists, the thickness of the inner cylinder is five to 10 times smaller (it must be from 5 to 10 microns in diameter). The difference between the two systems resides in the diameter and capacity.

The information signals (which can be television pictures, telephone signals or computer data) are emitted in the interior of the internal cylinder made of "doped" sand (mixed with other metals, primarily phosphorus, germanium or aluminum) in the form of waves (modulations) by means of a laser ray. The outer cylinders are made of pure silica. Once the optical fiber is obtained, it is coated and only then is it placed in the cable which should carry four of them, two for the transmission of information and two as reserves for greater security of the system.

In a recent congress in the United States, Professor Ramakant Srivastava saw a system developed by Bell Telephone in which, for 101 kilometers without repeaters, the optical fiber cable was capable of carrying more than 1,000 channels of telephone conversations.

#### UNICAMP Develops New Technologies

The technology of equipment which uses solar energy for drying agricultural products on the properties of Deputy Herbert Levy, and the "know-how" for obtaining textured protein from soybeans used by SADIA [expansion unknown] was developed in the same place: The UNICAMP campus of Barao Geraldo.

From the UNICAMP laboratories which developed the equipment and optical fiber used by CETEL (Rio de Janeiro State Telephone Company), also came the PCM (Pulse Code Modulation) equipment of 120 channels (which allows the use of a single telephone line by 60 persons at the same time) used by TULEPAR (expansion unknown), and special materials for use in electronics, particularly silicon and ultrathin wires used by TELEBRAS.

## Philosophy

The development of pure and applied research for direct use by companies has been part of the basic philosophy of UNICAMP since the university was founded by Zeferino Vaz. An enemy of the "ivory towers," which Brazilian universities were becoming, Professor Zeferino Vaz always advocated an intensive and useful dialog between Brazilian scientists and businessmen.

"Without losing the permanent vocation of producing and storing culture, the modern university should participate through a critical and creative process in the progress of the country, suggesting alternate models of development. A chapter in that story is the relationship of the university with private enterprise. Unfortunately, we have not yet achieved in UNICAMP as extensive a relationship as we want with the small and medium national companies. However, the basic objective of our work as leaders of the university is to seek a closer relationship with the objective of making advanced technologies feasible so as to avoid having to import equipment--no matter how sophisticated it may be," explained the present rector, Professor Jose Aristodemo Pinotti. Pinotti acknowledges that the Technological Development Company, CODETEC, created by Zeferino Vaz to facilitate that UNICAMP-business relationship, has not played its role in the manner desired and works well in some periods and sleeps during others. However, the university itself went through a long 4-year sleep from which it appears to be wanting to awaken now.

In periods of greater activity, scientists of UNICAMP performed research on hydrogen as a motor fuel. The energy group physicists developed electrolyzers (equipment for producing hydrogen from water through electrolysis) which are used by the Sao Paulo Power Company (CESP) in its powerplant of Corumbatai, Rio Claro, in the interior of Sao Paulo.

The physicists of the laser ray group developed argon laser equipment, which is already widely used successfully by ophthalmology clinics for eye operations. The same group, founded by Sergio Porto, created equipment for use in connections in large electric powerplants.

Semiconductors for microelectronics developed by UNICAMP are being used by TELEBRAS and ELETROBRAS [Brazilian Electric Power Companies, Inc], using the experience of the engineers of the university in the development of systems for electric transmission lines.

The minister of agriculture uses solar refrigeration equipment created by the group of physicists and engineers led by Professor Joao Meyer, now in France. The Brazilian Agricultural and Livestock Research Company (EMBRAPA), applies bacterial insecticide to the food of penned pigs on the basis of experience obtained on the campus of Barao Geraldo.

The prefecture of Paulina is studying the effects of school lunches on children in the first grade after a UNICAMP research, whose nutrition specialists developed a quick freezing process for coffee used by the Cacique Company, which makes and exports Brazilian powdered coffee.

## BRAZIL

### SATELLITE CONTRACTS SIGNED WITH CANADA, FRANCE

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 1 Jul 82 p 11

[Text] Minister of Communications Haroldo Correa de Mattos said yesterday in Rio that the launching of two domestic satellites scheduled for February and August 1985 is the most indicated and definitive solution for attending to the needs of the country in the system of telecommunications by satellite. He declared that it is a matter of a political affair which is that of occupying an orbital position which could be occupied by another country.

The minister explained that the contracts signed yesterday between EMBRATEL [Brazilian Telecommunications, Inc] and Spar Aerospace and Arianespace, Canadian and French, respectively, for \$122 million, nearly 20 billion cruzeiros, for the construction of two satellites, and another \$58 million, almost 10 billion cruzeiros, for launching them into space; plus another \$11 million, 1.87 billion cruzeiros, in "incentives in orbit," for insuring the useful life of the satellites, is a long project "the high point of national integration, which will be used in Telemedicine, the offshore shelves of PETROBRAS [Brazilian Petroleum Corporation], construction of hydroelectric powerplants, mineral prospecting in the Amazon Region, Education, Agriculture and coverage by radiobroadcasting."

Minister Haroldo de Mattos also said that the contracts include equipment for telecommunications, tracking and control station, which will be financed by Canadian and French banks. He said that EMBRATEL by choosing the Canadian company instead of NASA did so because the U.S. company did not adapt itself to the interests or timetables of the Ministry of Communications. The two satellites will be launched into space by the French rocket "Ariane" of Arianespace because it has a date available for Brazilian equipment in February and August 1985 and they will carry only two satellites, unlike NASA, which will make the launchings using the Columbia and carrying four satellites, which will result in a longer wait.

The Brazilian domestic satellite will remain at a distance of 36,000 kilometers from earth, weighs 1,140 kilograms, is 7.09 meters high, 2.16 meters in diameter and allows the simultaneous transmission of 24 television programs and 12,000 simultaneous telephone connections by satellite. Its launching will be made by the Ariane rocket, which weighs 234 tons and is 49 meters high with four stages. It will take off from French Guinea. In space, it will remain over the Amazon Region near the borders of Colombia, Venezuela and Peru.

For EMBRATEL president Helvecio Gilson "Brazil will be the first Latin American country to place its own satellite in service, making possible the complete coverage of national territory, linking extreme points of borders, improving the safety of flights at any point of the country and attending to areas of recent development and priority projects such as Tucuruí, Carajas, Itaipu or Serra Pelada."

8968

CS0: 5500/2292

NATIONAL COMPANY PIONEERING IN OPTICAL FIBER TECHNOLOGY

Rio de Janeiro MANCHETE in Portuguese 3 Jul 82 pp 140, 141

[Text] For the first time in the recent history of Brazilian technology, it was possible to develop a sophisticated, advanced engineering, that of optical fiber in record time and with our own resources in the laboratory phases and in the industrial line. It is the result of the industrial policy employed by TELEBRAS [Brazilian Telecommunications, Inc], reserving this important area of the market for national industry. Understanding this enormous demonstration of confidence, the Condugel Corporation began its development work in this sector and its success is the result of the support always found in the TELEBRAS CPqD [Research and Development Center], which is made up of the most qualified scientists and of professors from UNICAMP [Campinas State University].

Thanks to the happy union of objectives of that corporation--truly national--with those of the CPqD, the country almost simultaneously achieved that which was achieved by more industrially developed nations: The complete command of the transmission of communications by means of light along optical fiber cables. That rare example of the domination of an unusual technology did away with the customary and onerous need to purchase technological packages and specialized know-how from abroad. This long step taken by Condugel in the manufacture of the first optical fiber cable in the Southern Hemisphere also eliminated the long-standing dependence on foreign sources.

The practical result of that considerable, efficiently made advance in the electronic field is the initiation of operations of the first optical fiber cable in Rio de Janeiro by CETEL, the Rio de Janeiro State Telephone Company.

It is part of the interconnection system between the telephone exchanges of Jacarepagua and Cidade de Deus. It is a historic event. It opens the doors wide to the road to a broad, rapid and effective development of telecommunications in Brazil. The possibilities now within the reach of our hands are so great that experts in the field become speechless when discussing them. To understand the phenomenon, it is enough to say that in the transmission of telephone conversations, a conduit as big around as an arm, packed with insulated copper wires, can already be replaced by another of a diameter smaller than that of a drinking straw and capable of carrying 10 times the number of telephone lines. Cable television is at hand for whomever wishes to take it up and be its pioneer. Also

feasible already is the domestic or business videophone by means of optical fiber cable, which allows one to see what is taking place at the other end of the line, from the face of the other party to objects or items for sale at a supermarket. Satellite communications with aircraft in flight will be free of static from electricity and the human voice or navigation signals can arrive clean and crystal clear. In medicine, optical fibers will facilitate endoscopy, making a more efficient inspection of the interior of the human body possible, showing it clearly on a television screen. They will be pictures which may be transmitted far away over optical fibers also, pictures such as those obtained in a medical examination room in a remote region, which could be sent to a specialist at a large urban medical center, who could return that picture with his diagnosis on a reply channel of the same system. The optical fiber cable promises to revolutionize the distribution of data to and among computers, and it provides highly reliable remote control in hydroelectric powerplants, thermonuclear powerplants and factories, telemetry and telematics [as published]. To arrive at the production of the optical fiber cable, Condugel traveled a long road, but at a high speed, in these past 2 years. It was a road traced by the director of the corporation, Pedro Iacono, and driven by Engineer Dante Garnero, who was trained in physics, mathematics, engineering and electrical communications.

The promising background in the history of the corporation provided the incentive for the research. Condugel has a 25-percent share in the civil construction market with its lines of special products for energy and communications. This was achieved by competing in quality and credibility with the most powerful multinationals in the sector. Moreover, Condugel is one of the only manufacturers in the country of thermopair cables for instrumentation, signaling and control. Using national technology and capital, the development of its products for attending to new demands and formulations of the market has become routine.

As of 1978, the corporation began to study the feasibility of producing cables for telecommunications, despite the production supercapacity in the sector. However, its technicians did not intend to repeat what the other industries already making conventional cables for telecommunications were developing. Condugel did not lose sight of the trend in more technologically advanced countries, who were improving a means of transmission which was incredibly smaller and reliable. That means was optical fibers. Investing in new equipment, and using its own technological sources, Condugel designed and built a modern industrial line for the coating and drawing of optical fibers as a response to the demand for telecommunications cables with a higher productivity.

At the same time, the Optical Fiber Group of TELEBRAS was also accelerating its plans for the manufacture of optical fibers for telecommunications. To unite efforts, Condugel proposed joint work with the CPqD, concentrating isolated initiatives. Actually, the corporation always participated actively in the great Brazilian projects. Its name is closely linked with the hydroelectric powerplants of Itaipu and Tucuruí, with the North-South power grid, as well as with mining projects (Carajas), petroleum prospecting on land and on the offshore shelves and with transportation, railway as well as subway, the latter areas are those in which quality is outstanding. After a rapid expansion in the 13 years of its existence, Condugel is represented by five industrial units in the country.

In all of them there is the effort to face the great challenges with the quality and research of new products. The optical fiber cable is one of those efforts. Through them, with the speed of light, Brazil advances toward the future of telecommunications.

8908

CSO: 5500/2292

## BRAZIL

### BRIEFS

**SATELLITE COMMUNICATIONS STATIONS--EMBRATEL** [Brazilian Telecommunications, Inc] reported in Rio that on Thursday it will inaugurate three earth stations for satellite communications in Tabatinga, Tefe and Coari in the interior of Amazonas. Minister of Communications Haroldo Correa de Mattos, accompanied by State Governor Paulo Pinto Nery, will announce the initiation of operations by those units which will carry live pictures of the World Cup matches in Spain to the three cities, in addition to telephone and telex services. The ceremony will be held in Tabatinga. Simultaneously, from Manaus, Telamazon will be inaugurating a number of improvements to the telecommunications system of the state. In the capital, the number of telephone terminals will be increased by 4,160; in Tabatinga a telephone exchange will be inaugurated, in Benjamin Constant, a telephone exchange and a telephone booth, and between Tabatinga and Benjamin Constant, a UHF link will be installed. The company reports that at adjusted prices of last April, its expenditures on those three earth stations in Tabatinga, Tefe and Coari were 595 million cruzeiros. Communications systems in those regions were rudimentary, consisting only of shortwave. Almost 90,000 people will benefit from the new systems. In Tabatinga, the importance of communications resides in the fact that it is a border region (with Colombia and Peru) needing, therefore, more reliable means of telecommunications [Text] [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 1 Jun 82 p 14] 8908

**MINICOMPUTER PROJECTS--**The Special Secretariat for Data [SEI] an agency of the National Security Council, approved two more projects for the manufacturing of minicomputers in the country: Racimec Racionalizacio e Mecanizacao Ltda will produce the Racimec-1800, and Elebra Informatica S/A will produce a serial printer. The approval was officially announced in a memorandum signed by the Special Secretary for Data, Octavio Gennari Netto. According to the memorandum, the Racimec-1800 should have a central processing unit developed on the basis of microprocessor Zilloc 280, work memory available in Ram with 17 K bytes, with possibilities for expansion to 48 K bytes; memory for resident programs in ROM with 12 K bytes; interfaces for a video terminal; electronic keying, cassette type recorder, flexible disc unit with a capability for connecting up to four of those units and for a serial printer. Moreover, it must have an operational system, Scord, Monitor, interpreter and a compiler for basic [as published]. For the manufacture of the product, the SEI authorized the importing of integrated circuits which do not exist in Brazil of the CKD/International type, with the software to be developed exclusively in Brazil. At the requirement by the SEI,

the manufacturing of the Racimec-1800 must be done without depending under any circumstances on foreign technology, a method the government found for protecting national companies, assuring them a reserved market free of the competition of multinationals. With respect to the serial printer, the SEI authorized the imports of motors, printing head, integrated circuits and other circuits which are known not to exist in Brazil. [Text] Sao Paulo O ESTADO DE SAO PAULO in Portuguese 26 Jun 82 p 27] 8908

CSO: 5500/2292

## INTERNATIONAL AFFAIRS

### BRIEFS

ISRAELI-LEBANESE RADIO COOPERATION--At a meeting held yesterday between radio Director Gid'on Lev-ari and (Jan Azi), the director of the Free Lebanon Radio station, the two discussed a joint project for cooperation between the stations in subjects of entertainment and culture. A similar plan for cooperation is being discussed between the television stations of the two countries as well. [Text] [TA010931 Tel Aviv HA'ARETZ in Hebrew 1 Jul 82 p 2]

CSO: 5500/4730

## PLANS FOR SATELLITE STATIONS DISCUSSED

Kuwait AL-WATAN in Arabic 27 Mar 82 p 3

[Interview with engineer 'Adil al-Ibrahim, director of Bureau of Wire and Wireless Communications: 'Six Earth Stations to be set up in the Umm al-'Aysh complex by 1987'; date and place not specified]

[Text] In 1969 the first station for wire and wireless communications was opened in the Umm al-'Aysh complex of earth stations which are located at a distance of 71 kilometers north of Kuwait City. This complex was designed to include six stations by 1987 under the plan of the Ministry of Communications, and an earth station to work with the new satellites by 1990.

In a meeting with engineer 'Adil al-Ibrahim, director of the Bureau of Wire and Wireless Communications, he said, "On 28 October 1969, the first earth station was opened in the region of Umm al-'Aysh. In 1981 the Ministry of Communications concluded an agreement with Neon Electric Company for a project to change the station's antenna so it would be coaxial, in addition to altering the amplifier system by means of a new set of advanced equipment. The present receiving system which works with low-sound amplifiers was altered with new parts. As a result of this alteration the antenna of earth station no 1 can work jointly with the fifth group of Intelsat satellites, doubling its receiving capacity.

Concerning earth station no 2, Mr al-Ibrahim said that it was opened on 27 March 1977 as a result of the expansion of commercial activities, which led to intensive telephone communications with the western part of the world, necessitating the construction of this station. The contract with Siemens Co. was signed in the Federal Republic of Germany to construct a second system of antennas in the same location.

He added that the antenna of the second station is pointed toward the satellite of the Atlantic Ocean and is working with the states of this region. It has a capacity of 276 telephone channels and two television channels. The station is also provided with a "speed" system which works by computer.

Earth station no 3, which was recently opened, was built to meet the needs of increased international communications between Kuwait and other states on a wide scale. Therefore Neon Electric Company was contracted to build

a third earth station at a cost of 2.7 million Kuwaiti dinars. The station has a capacity of 324 channels, and its antenna is pointed toward the satellite in the Atlantic Ocean region.

On maintenance methods and control facilities, Mr al-Ibrahim said, "The earth stations in Umm al-'Aysh are directly linked with other distant earth stations by means of telephone and telex circuits. This helps maintenance workers to communicate with their colleagues in other countries to guarantee the continuity of work in the service. The operations of earth station no 1 are supervised and controlled by means of a central control panel which is operated by technicians around the clock. These panels give out warning signals in case of any error or malfunction in the apparatus. This helps those who supervise the panels to detect malfunctions immediately and repair them. Earth station no 3 depends on a more complex regulatory apparatus, that is, the branch system of the station administration. It consists of a regulatory system operating by the microcomputer of the control center supervising operating conditions of the communications equipment of the satellite and its dependent systems in earth station no 3. The SMSS system also regulates the system and equipment of the earth station on a constant basis. It also transmits and receives the barometric readings of the wave. This system limits malfunction when it occurs by adding its special symbol on the corresponding panel with the emission of electronic beeps. A computer prints out detailed reports on the malfunction, including the time of its occurrence, specifying the hour, minute and second, in addition to the location of the malfunction and a report on the condition of the regulatory apparatus."

On the communications satellite, he said it consists of a small linkage station located at a height of 22,300 miles above the equator. These satellites move in a fixed orbit around the earth, at the same speed as the earth's rotation. It therefore appears from the earth to be still. The satellite usually derives its operating power from the sun by means of solar cells. When the sun is absent, energy is supplied by special batteries due to the fact that the sun's rays are hidden from the satellite by the earth. He said that the satellite receives signals of the transmitting waves from the earth stations carrying the telephone conversations, cable and television messages in a range varying between 5.9 megahertz and 6.2 megahertz and 4.2 megahertz to the earth receiving stations. At that great height the satellite can cover one-third of the earth's surface. Therefore there are three satellites set in fixed geographical orbits, so that the entire surface of the earth is covered. The satellites are called by their location with respect to the earth: the Indian Ocean satellite, the Pacific Ocean satellite, and the Atlantic Ocean satellite.

In view of the density of the movement in some stations, more than one satellite has been used in one region, so that in the Atlantic region there are three equivalent satellites: MB1, MB2, and B-Primary.

At the conclusion of the interview, Mr al-Ibrahim said that the fourth Landmarsat station in the Umm al-'Aysh region will be the coastal Landmarsat earth station, which is expected to start operating at the beginning of

1987. It will have a capacity of 40,000 telephone circuits. This power will be derived by re-using the same frequency range up to six times by means of a division of space and polarization, and by using the method of numerical transmission on a wide scale in addition to the satellite's conversion capacity and its ability to use new frequencies. By 1990 it is expected that the Umm al-'Aysh complex will include an earth station to work with the new satellites.

9397

CSO: 5500/4715

## GULF COOPERATION IN TELECOMMUNICATIONS

Kuwait AL-SIYASAH in Arabic 31 Mar 82 p 5

[Article: "The GCC States' First Meeting on Training in Wire and Wireless Communications Concluded its Sessions Yesterday; Proposals to Exchange Training Programs and Their Particular Courses, to Prepare, Develop and Unify Training Programs in the GCC States, and to Organize Study Sequences"]

[Text] The closing session of the first meeting of the Gulf Cooperation Council [GCC] states in the field of training in wire and wireless communications met yesterday morning in the Kuwait Sheraton. It issued the following resolutions and proposals:

1. To exchange training programs, the courses particular to them, and the audio-visual methods that assist training.
2. To prepare, develop and unify training programs in the GCC states.
3. To prepare and organize study sequences, and carry out studies in the various fields of specialization connected with training.
4. To order efforts in the area of Arabicizing training courses and programs as much as possible, and to continue the activities which were started pertaining to Arabicizing scientific and technical terms related to the field of communications; to work to unify them in the member states.
5. To develop faculties, institutes, and training centers in the field of communications for the member states; to study the possibility of setting up a specialized technical school in the field of wire and wireless communications for the GCC states.
6. To prepare detailed surveys and planning studies for the required technical framework to carry out future plans for developing training programs in the GCC states.
7. To issue and exchange specialized journals and publications on training.
8. To exchange experts and groups of teachers, trainers and technicians between member states for training purposes.

4. To prepare, train and equip trainees from among the citizens of the GCC countries.

Those who were assembled decided to form a task force consisting of representatives from Bahrain and Kuwait, to do the following:

- to list the needs of the administrations of the member states for trainees, ascertaining the ability of these administrations to provide the necessary preparation for training.
- to clarify the training capabilities of faculties, institutes, and training centers in the member states, and the extent of their ability to train the required technical cadres.
- the task force takes up its duties starting 1 May 1982 with the understanding that it will complete its work by 31 July 1982 at the latest.
- the central training administration in Kuwait is responsible for following up on the work of the task force and informing the GCC states of their findings.

10. The second meeting of the administrations for training in wire and wireless communications of the GCC states will be in October 1982 in the headquarters of the general secretariat of the GCC.

His Royal Highness the Emir sent an answering cable of thanks to the president of the first meeting of the GCC states in the field of training. It reads:

"Brother 'Isa al-Rifa'i, president of the first meeting of the GCC states in the field of training in wire and wireless communications, Kuwait.

I received your kind cable which you sent on the occasion of your first meeting in Kuwait. I am very pleased to participate with you and the other brothers who are participating in this meeting, with the warm feelings that accompany it. I wish you all continued success, and for the citizens of the states of the Gulf Cooperation Council an increase in knowledge and training, the adoption of modern organizations in the field of its technical operations, and the raising of their capabilities. With my greetings, Jalil al-Ahmad"

His Royal Highness the heir to the throne and the president of the cabinet, Sheikh Sa'd 'Abdallah, sent a similar answering cable of thanks. It reads:

"Engineer 'Isa al-Rifa'i, president of the first meeting of the GCC states in the field of training in wire and wireless communications:

"We received with pleasure your cable on the occasion of the first meeting of the GCC states in the field of training in wire and wireless communications in Kuwait. We thank you and the presidents and members of the delegations

for your good sentiments. We hope for success and noble goals for your meeting, for the good of our homeland and our people. With best wishes,

"Sa'd 'Abdallah al-Salim al-Sabah  
Heir to the Throne and President of the Cabinet"

The Minister of Social Affairs and Labor and Ministers of Housing, Hamad 'Isa al-Rajib, sent a similar answering cable of thanks. It reads:

"Brother 'Isa al-Rifa'i, president of the first meeting of the GCC states in the field of training, Hilton Hotel.

"I gratefully received your kind cable expressing the noble sentiments of you and your colleagues, the brothers who are presidents and members of the delegations of the sister states participating in the meeting, hoping that you will convey to all my true greetings and sincere wishes that this meeting will realize the goals it hopes for. As for the work we have done on behalf of our brothers, it is only a small expression of our feelings of brotherhood toward the states and peoples of the Gulf Cooperation Council. May God grant you success."

Hamad 'Isa al-Rajib  
Minister of Social Affairs and Labor  
Minister of Housing

9397  
CSO: 5500/4715

## BRIEFS

TELECOMMUNICATION LINK--Oman is the vital connecting point, of a link-up planned by the Islamic Telecommunications Union and now in an advanced planning stage, reported the TIMES OF OMAN recently. Oman's key role was seen in an official map distributed among delegates at a meeting of Kuala Lumpur in April to discuss the draft constitution of the union. A spokesman for the Oman government said that the Islamic Telecommunication Union will be formally launched in October this year at the general assembly of all states of the Islamic conference Organisation to be held in Riyadh. He said the meeting decided to form four geographical zones to collect information and data that may be required to build a unified telecommunications network. Zone A includes Iran and the Arab countries, Zone B, Turkey and Arab states, Zone C, Arab states in the Maghrab and Zone D includes non-Arab states in Africa. Owing to its geographical position Oman has been chosen to be the connecting link for transmissions between Asia and the Middle East. Aims and objectives of the Islamic Telecommunications Union, which is being formed under the patronage of the Islamic Conference Organisation will be to cooperate efforts to achieve cooperation among member states to develop their telecommunications network. The meeting discussed in detail various clauses of the draft prepared by Saudi Arabia and incorporated a number of suggestions put forward by delegates. The meeting discussed ways to foster closer telecommunication links among the member states. Matters pertaining to training, exchange of expertise and improvement of telecommunications services were also discussed. [Text] [Kuwait ARAB OIL in English No 6, Jun 82 p 52]

TELEPHONE EXCHANGES--The Italian Fish Standard ITI Company, recently won a contract for the construction of four new telephone exchanges in Oman. The contract, valued at 4,526 dollars, was signed by the Oman Minister of Posts, Telegraphs and Telephones, and includes the construction of exchanges each with 1,000 lines. Work on the four exchanges is expected to be completed within six months. The contract is part of a larger project which aims to provide 44,000 new telephone lines during the next four years, as part of Oman's second five year plan. [Text] [Kuwait ARAB OIL in English No 6, Jun 82 p 52]

CSO: 3500/4727

STATE SECRETARY ON BUNDESPOST TELECOMMUNICATIONS SERVICES

Duesseldorf VDI NACHRICHTEN in German 30 Apr 82 p 2

[Interview with State Secretary Dietrich Elias, Dipl Eng, date and place not given: "German Post Office to Make Timely Expansion of Services"]

[Text] Transmission of data between storage typewriters or computers was among the much-discussed topics during the Hannover Fair. Whenever out-of-house information exchange between individuals or businesses has to be transmitted via electrical lines, the services of the German Federal Post Office [DBP] are required. If the DBP withholds authorization to connect equipment to its telecommunications network, a development may not get beyond the prototype stage. Questions on such topics as which telecommunication services are already offered by the DBP and how they satisfy the desires of businesses and how the ministerial staffers project the future expansion of DBP services were answered by State Secretary Dietrich Elias in an interview with VDI NACHRICHTEN. Dietrich Elias is one of the two state secretaries of the Federal Ministry for Mail and Telecommunications.

VDI NACHRICHTEN: During the Hannover Fair, manufacturers are displaying in several exhibit halls data processing equipment which to a great extent is suitable for remote data processing. What services can the DBP offer data processors?

Elias: In addition to the datel services of the telephone system and direct-call connections, I should like to mention the modern services of the datex network. The wire-transmitted Datel-L-Service offers in many cases suitable solutions for both batch and dialog applications. The courier-forwarded Datex-P-Service is extremely well suited for dialog purposes and also lends itself to batch transmission. Transfers can be made from both the telephone network and the Datex-L-Network to the Datex-P-Network. These systems provide many alternatives for economical data transmission.

VDI NACHRICHTEN: Can the DBP satisfy the demand for circuit capacity in direct-dialing long-distance service and when will this network be further expanded?

Elias: The DBP network is being expanded continuously. To this end, investments for the telephone network have been increasing from about DM 1 billion in 1977 to 3.3 billion in 1982. Also, over DM 3 billion will be invested annually in the telephone network over the next few years to clear the bottlenecks which arise during the low-rate period and under certain traffic conditions. With these gigantic investments, German industry will be loaded to the limit of its supply capacity.

#### Digital Transmission Stations

VDI NACHRICHTEN: Already available to businesses are transmission stations which can relay speech and data together, yet the DBP carefully separates telephone, teletype and data circuits, why?

Elias: Different signal sources, for example telephone as analog and teletype as digital, have in the past led to separate networks.

Upon converting the telephone system to a digital network, an integrated-service network will be possible. In order to gain experience as fast as possible, the DBP plans to set up a provisional 64-kbit model network serving a limited number of subscribers. The technical base for this model network will be the present integrated teletype and data network. In addition, the planned telecommunications satellite offers the possibility of also integrating broad-band services. In the long term, we are, of course, planning to integrate all telecommunications services in a comprehensive glass-fiber network.

VDI NACHRICHTEN: There is also the teletex service for transmitting text between electronic storage typewriters and other equipment for text processing and assimilation. How is the expansion of this service proceeding?

Elias: At this-year's Hannover Fair, the DBP, together with the manufacturers involved, exhibited for the first time teletex and equipment of the various manufacturers with worldwide compatibility conforming to the new international CCITT standard.

With the advent of the CCITT standard and its associated compatibility, the most important step for international teletex service has been taken.

The DBP plans, therefore, at mid June this year to convert the entire teletex network to the newly achieved international standard. Parallel to this, the teletex equipment currently used in the German network by about 650 subscribers will be converted from the provisional national standard to meet the international standard. After the conversion, only end equipment conforming to the new CCITT standard will be connected. I anticipate 40,000 teletex connections within 5 years and 130,000 within 10 years.

VDI NACHRICHTEN: To make computer power available at the work place, businesses will install more visual display equipment and small computers. Currently, there is a competition between the offerers of cable networks such as Ethernet [apparent omission in text] in which equipment can be plug-connected

and provide the vendors of digital speech, text and data exchanges functions similar to those of the well-known telephone extension equipment. Will the DBP lose a market here? Will DBP also offer such facilities in the future?

Elias: The concepts mentioned are basically technical variants for solving the same problem. The DBP is however not tied to a particular technical solution. Currently, a market for such universal equipment is not yet discernable to any significant degree. Whether the DBP will get involved has not yet been decided.

#### Private Telecommunications Satellite

VDI NACHRICHTEN: If companies set up their own internal broad-band networks, they could also transmit this information to distant places via private satellites. What is the DBP doing in this regard?

Elias: According to present information, the satellite services will be integrated services and thus also contain telephone cannels. The DBP will not withhold these services from the Germany economy. In accordance with its legal mandate, it will of course offer them to the public--and thus to interested businesses also--as public services. For this purpose, the DBP plans to operate its own telecommunications satellite.

VDI NACHRICHTEN: The DBP will officially introduce CRT text in 1983. Was the introduction of these services announced before completion of the field tests in Berlin and Duesseldorf because it was shown that CRT text will be used mainly as an information and sales medium between companies and branch offices rather than for the satisfaction of the information requirements of individual subscribers?

Elias: The Federal Government decided in June 1981 to introduce CRT text for purposes of individual communication. In accordance with this decision, the DBP is preparing the technical basis for introducing CRT text countrywide after 1983.

The CRT text test has been underway in West Berlin and Duesseldorf since June 1980. Based on initial findings from the associated scientific studies, it can already be stated that there is a high interest in both commercial and private applications, for instance in home banking and home shopping. The same is increasingly true for the information services already offered. The demand in both the business and private sectors for economical data communications was one of the basic reasons for deciding to introduce CRT text.

VDI NACHRICHTEN: Several CRT text suppliers are dissatisfied with the rate structure. Memory space is too expensive; a final ruling is still pending. To what extent are DBP considerations involved?

Elias: The storage area fees currently under discussion are still based on the old CRT text concept. With the buildup of restructured CRT text centers, the storage area fees will also have to be discussed again. Final statements cannot yet be made in this connection.

VDI NACHRICHTEN: As a private subscriber to the CRT text service, I need a telephone, an appropriately equipped TV set and a modem. The DBP requires that this modem be external to the other equipment. Why?

Elias: The subscriber's modem provides an interface with the telephone network, independently selects the CRT central and identifies the customer. With these functions--especially the circuit interface function--the modem clearly falls into the DBP's area of responsibility; it, of course, must fulfill service and repair obligations. If the modem were housed inside the TV set, the assignment of responsibility in case of trouble would be extremely difficult.

VDI NACHRICHTEN: In Great Britain, the telecommunications branch of the post office has by law received private competition in all telecommunications services which it has not been able to provide in the past for technical reasons. Is there a threat of similar developments in the FRG?

Elias: A change in the laws controlling the DBP does not appear to the Federal Government to be required at this time. In contrast to the earlier conditions in Great Britain, there is considerable freedom for private offerers in the FRG: Just consider the telephone extension equipment; add-on equipment for the hand set and the teletex equipment.

#### A More Liberal Market for End Equipment

VDI NACHRICHTEN: Many manufacturers would like to see a liberal end-equipment policy, for example a telephone jack into which all sorts of telephone and peripheral equipment could be plugged. Do you foresee liberalization in this area?

Elias: The end-equipment market in Germany is extremely liberal. In many areas such as in the case of PBX and telefax equipment, the DBP is in competition with private firms and in some cases holds only a small fraction of the market. Also, relative to new services, a decision will have to be made on a case-by-case basis as to whether the DBP will participate in the end-equipment market at all. Only the telephone equipment at the primary telephone connection will be left solely to the DBP. This cannot be separated from network operation because the telephone set controls the structure of the switching network and assures transmission quality. To define an interface which provides greater freedom is not possible with today's technology. And even with changed boundary conditions, such as a digital telephone network, the prerelease of technical telecommunications standards will be required for designing the end equipment. For this reason, completely unconstrained attachment of arbitrary equipment which is not subject to a certification test will probably never be considered.

VDI NACHRICHTEN: Is it conceivable that the DBP will install instead of a telephone connection a modem as basic equipment to which arbitrary communication equipment can be connected? When will DBP install a simple telecommunications jack?

Elias: A modem interfaces digital signals with the transmission characteristics of an analog telecommunication network. It can be used only for the operation of data transmission corresponding to the particular interface conditions in accordance with the CCITT standard.

No matter how appealing the concept of a simple jack, the solution will never be that simple in the telecommunications area. How the technical solutions associated with the integration of the various services will look--especially with a glass-fiber connection for all telecommunication services--simply cannot yet be imagined.

#### Procurement Policy Fundamentals

VDA NACHRICHTEN: The DBP has announced that it will establish several local glass-fiber networks (BIGFON) which will be able to transmit telephone conversation; text and data information; television and radio programs and IV-telephone. Has a date been established after which only glass-fiber, instead of conventional, cable will be laid?

Elias: No, a final decision concerning type, scope and date for the general introduction of glass-fiber technology into the telecommunications network of the DBP has not yet been made. This decision must finally be made on the basis of an economic feasibility study, and adequate reliable data for this is not yet available. Of course, we are assuming that from the volatile technological development in this area, glass fiber will mature as a full-fledged replacement for copper cable so that its use even for narrow-band services such as telephone will be of interest. Additional possibilities such as IV-telephones would then emerge without the construction cost of a new network.

VDI NACHRICHTEN: The DBP does not itself manufacture equipment and installations; it procures them. It is not always domestic companies which supply this equipment, for example telecopiers and CRT-text computers. Can you tell us something about how procurement decisions are made?

Elias: The notion "domestic companies" is a delicate subject. To us it means companies which manufacture the candidate product in the FRG or West Berlin and thus provide jobs in our country.

The foundation of the DBP's procurement policy can be summarized thus: The FRG's economy and jobs are strongly export-dependent. We cannot afford to be subjected to the import restrictions of other countries; thus, we should not advance the cause of protectionists in other countries through our own import restrictions. Thus, the DBP basically buys those products which have the best price-performance ratio for the expected service conditions.

There is of course one exception: That is the core area of telecommunication technology, for example, public telephone technology. We are not now considering involving foreign companies in this area so long as the German communication industry continues to offer technical and economic solutions equal to world standards. This exception will be maintained until agreements relating

to a balanced exchange of goods of this type are worked out within the framework of international liberalization of public procurements, for example, within the framework of the EC or GATT.

#### Certification Center Created

VDI NACHRICHTEN: In the telephone market one often hears the derogatory term "court vendor" to the DBP. For example, the special report of the Monopoly Commission of February 1981 deals with four development firms and eight licensees. How can the dichotomy between domestic procurement policy and competitive procurement be solved?

Elias: The DBP operates the opposite of a closed-shop policy.

In the sector "telephone equipment for primary public installation," we use what is known as the "set-aside process." In this process, an attractive fraction of demand--25 percent, for instance--is set aside for competitive bidding to establish a price, and the "set-aside" fraction is awarded to the competing companies through private contracts. In this manner, competitive procurement, on the one hand, is connected with a certain constant level of employment, on the other. The Monopoly Commission has saluted the procurement method of the DBP. Through this method of competition, economical procurement is assured involving only domestic suppliers.

VDI NACHRICHTEN: What actually happens with reports like those of the Monopoly Commission other than that they are read and passed along? Can you cite an example wherein the citizen can see the direct influence of investigations or hearings on a law, measure or decree?

Elias: First a general comment:

The Monopoly Commission has contributed to clarifying the complex problems of telecommunications with their special investigations. In this regard, it has once again been shown that a detailed, thorough involvement with the roles and missions of the DBP leads to discrediting the list of categorical and usually unfounded accusations.

The report has engaged parliament and the Federal Government and has also led to actions in the DBP which on occasions have gone even beyond the proposals of the Monopoly Commission. An example which comes to mind is the establishment of a certification center for telecommunications equipment outside of the FTZ, whereby the separation of procurement and certification functions are very clearly documented. Also the recommendation of the Monopoly Commission to institute a special legal-use claim to the certification of private telecommunications facilities will presumably become law by the end of 1982. It will also standardize the conditions under which a legal claim to such certification exists.

9160

CSO: 5500/2267

BUNDESPOST PLANS TO TRANSMIT DATA BY SATELLITE BY 1984

Munich SUEDEUTSCHE ZEITUNG in German 15 Jun 82 p 21

[Article: "Post Office Will Get Letters From Heaven"]

[Text] Bonn--The FRG is standing at the beginning of a new era of electronics information transmission. It is possible that the German Federal Postal Service [DBP] will complete various domestic communication links (Berlin traffic, high-speed data traffic, video conferencing, etc.) via its own new national telecommunications satellite after the spring of 1984. This came to light recently during the course of a 1-week trip to the United States by Postal Minister Hans Matthoefer. The U.S. telecommunications company, Western Union Corp, offered to sell Matthoefer its Westar 3 telecommunications satellite which the company has used since 1981 for relaying domestic American telephone traffic.

The DBP, which is very interested in the American offer, would be entering with this satellite an area of modern communication transmission which until now has been considered as largely unattractive for the relatively small FRG with its dense telecommunications network. Even though the DBP has for years used the American telecommunications satellites for relaying intercontinental picture, sound and data traffic from its ground-based radio stations in Raisting and Usingen, the use of a satellite for national telecommunications traffic appeared superfluous up to the end of the 1970's. The situation has changed in recent years, however, due to the greatly increasing demand for high-capacity data transmission capabilities which focus more on point-to-point traffic and less on wide-area network traffic.

Instead of Glass Fibers

The application of a national telecommunications satellite offers in such cases important technical and financial advantages compared to expanding the postal cable and microwave networks. In the future, any postal patron who would like to make industrial use of certain data and video services can, so to speak, "pull them out of the sky" with his own parabolic antenna having a diameter of 3 to 5 meters. This is a process which has been successfully operated for several years in the United States by large telephone companies and the Washington specialist firm Satellite Business Systems.

In this connection, it is important for the DBP that with the domestic satellite a part of that demand can already be covered for which a wide-area glass-fiber network will be strung in the FRG during the next decade. While the telecommunications satellite--in contrast to future direct TV reception via satellite--probably cannot be considered for use by individuals, it already offers German commercial users the manifold transmission capabilities of a glass-fiber link. This holds both for extremely fast data exchange and for all varieties of picture transmission--from the engineering drawing transmitted in seconds, to the color video conference between a home office and its branch offices at home and abroad. Video experts in the United States maintain in this connection that at least a quarter of all time-consuming business trips can be saved with the aid of such TV conferences.

For the DBP itself, the domestic German satellite is of special interest for two reasons: first, it could significantly contribute to unloading the telecommunications network between the FRG and West Berlin for which there is a shortage of microwave channels; second, it could ring in a completely new age in the mail area in which urgent letters could be transmitted via satellite from one post office to another in the future. This would make it possible to automate and transmit in fractions of a second the DBP's "faxed" teletexts, a mail system which has been under development since 1981 at considerable expense and which is still unreliable. A letter presented at post office A would with the aid of a precoded address be relayed by satellite to receiver post office B where it would be automatically enveloped and either delivered immediately or picked up by the addressee. A large part of the physical transportation of mail could be saved thereby, significantly contributing to the financial relief of the deficit-operating postal system.

#### German Proposal

No matter the outcome of the negotiations between the DBP and Western Union Corp concerning the sale--the cost is put at \$70 million--of the used Westar 3, a German consortium led by Siemens AG will submit to DBP a concrete proposal for a national telecommunications satellite by this fall. However, the earliest launch date with the European rocket Ariane would be 1986. A decision from DBP is possible by the end of 1982. According to Western Union, the Westar 3 still has enough fuel so that it can be moved from its present position over North America to an optimal position for the FRG. The satellite, whose mission will be taken over by a larger Westar at the beginning of 1984, still has about 10 years' life left.

#### Teletex with the United States

In addition to the question of the satellite purchase which the postal minister discussed last week with representatives of Western Union, the latter agreed to complete the first intercontinental teletex circuit linking the FRG with the Western Union network. Further, Western Union agreed to buy both the transmission and end equipment from German suppliers. The direct teletex service--the transmission of complete typewritten pages in fractions of a second--between the United States and the FRG is expected to start by fall.

9160

CSO: 5500/2275

## SATELLITE TV TESTS STARTING IN ROVANIEMI

Helsinki HELSINGIN SANOMAT in Finnish 12 Jun 82 p 8

[Article: "TV Satellite Tests in Rovaniemi Also"]

[Text] The Postal and Telecommunications Administration does not intend at least for the time being to heed the urging of the Communications Ministry to cease its tv-programming satellite tests. The central office has sent the ministry a letter in which it justifies the necessity of its program testing. It considered it imperative that cooperation with Helsinki TV be continued and tests also be started in Rovaniemi.

A couple months ago the Communications Ministry sent the postal administration a letter in which it strongly disapproved of the use of state funds for tv-program reception testing by means of an OTS-satellite. The ministry urged the postal administration to bring an immediate halt to this venture.

The postal administration now considers that the Communications Ministry became involved in this issue too late. The postal administration decided to commence experiments in January already and the tests themselves commenced in March. HTV [Helsinki Television] has informed the postal administration that a possible violation of the contract would result in a demand for compensation and if necessary legal action.

In concluding a contract both parties proceeded from the fact that the tests will continue as long as the OTS-satellite is operational, emphasized the postal administration. In addition, the postal administration points out the negative reaction of viewers if programming is interrupted before the "natural death" of the OTS-satellite.

'Comparative Data from Rovaniemi'

Moreover, the receiving equipment has been delivered and installed in Rovaniemi. The postal administration considers it imperative that this equipment be used also. In this way we will be able to obtain good comparative data for the tests in Helsinki. In addition, the postal administration considers that satellite-tv programming in the Rovaniemi cable network would give the general public a more positive impression of state-run operations.

The Communications Ministry in its letter referred to cable television legislation currently under consideration. According to the ministry during the preparation phase of this legislation it does not make any sense to initiate new forms of cable television with the consent of the government.

The postal administration considers that it is not a question of an essentially new form of cable television operations in this experiment. In addition, the postal administration emphasizes that the experiment cannot comprise the basis of a permanent system or legislation because of the short life span of the OTS-satellite.

#### Postal Administration Wants To Be Involved

On the other hand, the postal administration points out that if it is not actively involved in satellite program transmissions, it could end up relinquishing this activity to some other organization.

In its letter the postal administration provides a detailed account of the economic and technical advantages of an extensive cable television system in comparison with joint antennas for individual housing units. In its letter the central office considers that television satellites will increase the need to establish state-run wide-sector local networks and will also provide a means to market them.

10576

CSO: 5500/2265

FINANCING SEEN AS KEY TO CIT-ALCATEL-INDIA CONTRACT

Paris L'USINE NOUVELLE in French 27 May 82 pp 62-63

[Article by Eric Leboucher and Eric Lecourt: "The French Line"]

[Text] The scope of the CIT [International Telephone Company]-ALCATEL [Alsatian Company for Atomic, Telecommunications and Electronic Construction] contract in India confirms the competence of the French group in the domain of telephone equipment. It also illustrates the new relationships France seeks to establish with the Third World.

The French North-South cooperation policy being advocated by Francois Mitterrand entails the transfer of our technological know-how to countries that are seeking their industrial independence. Mexico, Algeria and, above all, India are among them. To succeed on the Indian terrain, France is calling upon her experience in aeronautics and telecommunications.

First contract: The Mirage 2000. At the end of March, the French (Dassault, Thomson-CSF [General Radio Company] and SNECMA [National Corporation for Aircraft Engine Design and Construction] were the successful bidders over the British and the Soviets. They were awarded the contract for the delivery of 40 planes to the Indian Armed Forces and an option on a manufacturing license agreement covering the production of 110 additional planes. With French assistance, India plans to build these Mirage 2000's in the Hindustan Aeronautics United plants at Bangalore, where the Franco-British Jaguar plane is already being assembled.

Second operation: The telephone equipment contract. Last week, the CIT-ALCATEL group, a subsidiary of the CGE [General Electrical Company], signed a contract which should finally be initialed by the end of summer. The contract is in two parts. The first part, amounting to 1 billion francs, concerns the furnishing of time-division telephone exchanges with an overall capacity of 200,000 lines and the building of two plants: One at Hosur capable of producing 500,000 lines, and the other at Palghat with a capacity of 30,000 lines, both under French license. The second part, in the amount of 2.2 billion francs, concerns French exportation of the exchanges needed over the next 5-7 years pending the construction of the plants and their operation at full output.

### Financing a Decisive Factor in the Negotiations

The overall sum of the contract--3.2 billion francs--is covered to the extent of 50 percent by loans at 7.5 percent interest, and to the remaining extent (50 percent) by loans at market rates. Here again, the financing put together by the French was one of the decisive factors when it came to the final round of talks. One month ago, in the negotiations on the manufacture of a small Indian automobile, the French financing package lost out against that of the Japanese. And Suzuki won out over the "gotha" of the automobile builders.

Financing will still be a determinative factor in the forthcoming contract, the Indian telecommunications authorities--who are planning to install 1.5-2 million new lines per year (the current total is only 1.7 million lines for 650 million inhabitants)--having already launched another similar request for bids. The results of this bidding will not be known until next year.

### First Big Contract in Asia

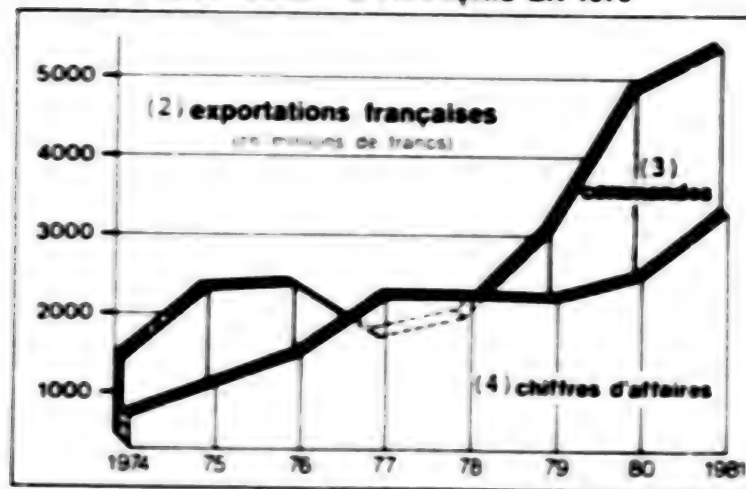
Will CIT-ALCATEL be the winner of it all? There is no assurance that it will. Generally speaking, countries seek to have at least two suppliers to maintain competition and guarantee the certainty of supplies. But be that as it may, the management of the group is happy: "It is our first big contract in Asia, a continent that now represents one-third of the available world market." Available, that is, outside of captive markets like Germany and France, which reserve their domestic markets to their own national manufacturers.

The French, who for the past 3 years have been making attractive breakthroughs into countries as diverse as Egypt, Lebanon and Ireland, had hesitated to try to go into Asia, considering those countries to be too distant. Meaning too close to the Japanese, their most formidable competitors together with the American ITT and the Swedish LM-Ericsson. Several months ago, however, they were able to take the measure of the stakes involved by way of a small contract signed with Sri Lanka. To penetrate into Malaysia, CIT-ALCATEL acquired a one-third interest in the local Fleet Communication group. Fleet then responded, in behalf of CIT, to the Malaysian PTT's request for bids. But this association approach, indispensable though it is, is a lengthy, costly and risky thing to put into operation. Evidence of this is the fact that the Malaysian contract is about to be awarded to LM-Ericsson, after an initial part was won by Japan's NEC [National Electrical Company] in association with another local group. Despite the trips made by Louis Mexandeau, minister of PTT, to Djakarta, the Indonesian program is in serious danger of eluding the French and falling into the Siemens basket.

The Indian contract therefore comes in the nick of time. It will serve as a "reference" on French technology in this part of the world, in the telephone domain--a sizable request for bids has just been launched in Thailand--but also with respect to the related electronics and telematics markets.

Following the Mirage 2000 contract, this new success shows that the big French groups are prepared to play the technology transfer card in the developing countries. In India, several PME's [Small- and Medium-Size Businesses] have already explored this route of associating with local partners.

(1) LE DECOLLAGE FRANÇAIS EN 1979



Key:

1. The French "Lift-Off" in 1979.
2. French exports (in millions of francs).
3. Orders.
4. Annual turnover.

In 1979, Thomson and CGE "lifted off," responding to requests for bids with a time-division technology they had mastered. In 1980, the French share of the available market was 6 percent.

9399

CSO: 5500/2754

TELECOMMUNICATIONS STUDY CENTER MAKES TECHNOLOGY AVAILABLE

Paris L'USINE NOUVELLE in French 27 May 82 pp 75-77

[Article by Nicole Grange: "The Proteges of the CNET"]

[Text] Large enterprises will no longer be the only ones to benefit from the CNET's [National Center for Telecommunications Studies] state-of-the-art technology and its patents: The CNET is now making the results of its work available to the PMI's [Small- and Medium-Size Industries]. A way of reviving competition and developing innovation.

"CNET" technology for sale." "The CNET is offering..." The CNET is actually seeking to market its inventions. Particularly--and it is a recent thing--by way of the PMI's. Possessing state-of-the-art techniques, as it does, and a portfolio of patents developed in the course of its research work (the Center is devoid of any manufacturing mission), it is placing the results of its work at the disposal of industry.

These technology transfers are not something new: They have even been a standardized thing for several years now, but essentially limited to the large enterprises working in the domain of telecommunications. Thus Thomson-CIT [International Telephone Company]-ALCATEL [Alsatian Company for Atomic, Telecommunications and Electronics Construction], Philips, MATRA [Mechanics, Aviation and Traction Company]... were partaking of the work of the CNET.

From now on, the CNET will be catering to the PMI's. This new approach is not a totally disinterested one: This opening toward the smaller enterprises is intended to reinvigorate competition and develop innovation. For, the big manufacturers are not always in a hurry to develop new techniques if they cannot see ahead of them a wide-open market and assured production... The PMI's are more flexible and can react more rapidly to market stimuli, indeed even arouse demand.

It was the PME's [Small- and Medium-Size Businesses], for example, that opened up the market for videotex. Andrei Landau, director of marketing for the XCOM [expansion unknown] company (30 persons at Grenoble), which specializes in microelectronics studies and applications, recalls that at the inception of

telewriting the first market studies indicated a bottleneck. A few months later, the demand surfaced. Andrei Landau's conclusion: "Applications were found for it in the domain of video-conference."

Another point of interest in working with the PMI's: Since contacts take place directly with the decision makers, decisions are taken more rapidly.

Added to this is the policy intent to get the other telecommunications services to cooperate with the PMI's. The DAII [Directorate of Industrial and International Affairs] has thus also opened up its bidding for studies and procurements to the PMI's. True, 90 percent of today's studies and technology transfer markets are still being shared among the big enterprises, but officials of the CNET estimate that 15 to 20 percent of the techniques to be industrialized could be taken up by the PMI's. "Particularly in certain areas: Softwares, terminals, equipment for small private networks, multiservices... to diffuse techniques that interest sectors other than telecommunications," explains Andre Nizeri, head of the CNET's patents and invention applications service.

The flat-screen technique, for example, has interest in telecommunications for the manufacture of the electronic directory, but the graphics data system can also serve all electronic industries.

A few PMI's have already acquired licensed rights from the CNET. They are for the most part located in the Paris region, notwithstanding the presence of CNET laboratories at Lannion, close to Rennes, and at Grenoble. The Dyna Company, in Paris (60 persons and 12 million francs annual turnover), for example, has bought a time-signals reception system. The CNET had developed a method for the transmission of time signals by radio, and was seeking an enterprise to industrialize it. Dyna, which specializes in time measurement and the manufacture of industrial clocks, obtained the rights under license to manufacture and market the receivers. The contract, priced at around 20,000 francs, provides for the payment of a royalty (4 percent) on each piece of equipment sold to other than the government.

More often than not, licensed rights are not exclusive. Technical assistance is provided by CNET engineers. The enterprise is provided with the drawings and even the prototype as built by the CNET. It is then up to the enterprise to complete it or improve it if required. But the enterprise remains the master of its fabrication and of its market outlets. Based on this CNET technology, Dyna has brought out two equipments: A clock that displays the time and a data processing card that receives, decodes and retransmits the time signals. "This patent has opened up outlets for us," says Pierre Meurein, the manager. "Every day we find new applications and new clients: The armed Forces, government administrations, large enterprises, EDF [French Electric [Power] Company] to equip their meters. The export outlook is interesting: Within 1 year from now, we expect to be realizing 50 percent of our annual turnover from this activity," he adds.

AML [Mathematical and Software Applications], a small enterprise that develops data processing methods and programs, situated in the Paris region, expresses the same satisfaction. It bought licensed rights from the CNET on the latter's software for synthesizing speech from written text. "For a PME, the use of CNET patents offers real advantages: They are excellent bases on which to develop one's own research," explains Arnault Henri-Labordere, manager, "and this enables furthermore to have access to interesting market demands."

Since this agreement, AML has gone into word processing. "A market niche that will offer fantastic outlets: The demand for computer terminals will multiply when these are able to speak," says Arnault Henri-Labordere enthusiastically.

#### The CNET a Research Laboratory for Enterprises

Technology transfers take place also by way of study contracts, which can subsequently lead to the granting of licenses. The study contracts awarded by the DAIL are much sought after by the enterprises, involving as they do financing for their studies and fabrications. They relate to the specific needs of the government telecommunications services, but can give rise to other applications. For a long time, they were reserved to the large firms; but the PMI's are now beginning to share the advantages they provide.

"Our cooperation with the CNET started by way of a study contract," recalls Andrei Landau, "first, building prototypes to meet the specific needs of the PTT, then exploiting the techniques for other contracts." The technology of speech synthesis enabled them to manufacture a data processing card that is applicable to various information computerization systems, for example. "For a company like ours, oriented toward new technologies, it is a prime requisite that we obtain a know-how that will open up markets for us," he continues. The CNET thus serves as a research laboratory for the enterprises.

#### Small Enterprises Not Always Adequately Structured

Other PMI's also benefit from CNET licenses: The FIET [expansion unknown] company, near Rennes, has manufactured a melograph; BOGA [expansion unknown], at Bricamp, a telephone distribution frame... But they are not many in number. First, because the PMI managements more often than not do not know what the CNET can make available to them. "It has more the image of a research center distanced from industrial applications," says one industrialist who has since become better acquainted with the CNET. And secondly, because the system has its limitations, in that, although the CNET can serve as a research laboratory, its partners must, for their part, be adequately equipped from the standpoint of research and marketing to be able to work with the CNET.

Actually, the terms and conditions on which licenses are granted are not within easy reach of everyone: The CNET's efforts are not directly industrializable. They must go through a pre-industrialization phase. "The CNET stops at a laboratory prototype, even at a feasibility-study model; the enterprise then must

undertake the necessary development studies. It is a long and demanding task in terms of time and capabilities. The small enterprises are not always structured to handle it," explains Andrei Landau.

The fact is that the laboratory prototype does not take into account industrial imperatives: The enterprise's industrial prototype will be a function of the material-supplies potential (composites, for example), of a marketable-price study, marketing outlet surveys, etc. "One receives documents, magnetic tapes, floppy disks... A major portion of one's research effort goes into transporting of files, translating of programs. Transcription work results in a considerable loss of time and energy," adds Arnauld Henri-Labordere. And leaving this work up to the PMI's limits their access to the know-how, in that, they must have a certain amount of experience in data processing.

Another handicap: The PMI's rarely have a marketing approach that is adequate to enable them to enter markets for new products. "Buying a license from the CNET is buying, at one's own risk and peril, a method, and industrializing it without really knowing if a market exists for it downstream," warns one industrialist. Certain PMI's have taken this risk. "We have developed telewriting equipment, and once we had mastered the technology, we have looked for its potential clients and found them," says Andrei Landau.

All products do not lend themselves to this approach: Serge Cervaux, who manages FIET, developed a melograph based on a license from the CNET: "It was an interesting idea but absolutely unprofitable," he says. "The equipment got out on the market too late and at too high a price." Today, he prefers to sign study contracts with other PTT services rather than buy a CNET license.

Between not enough dynamism on the one hand and a lack of realism on the other, the PMI's and the CNET have a long road to travel to meet each other halfway. But while it is true that these first experiences are still recent, there is still room, nevertheless, for procedural improvements. Cognizant of these difficulties, the CNET is going out of its way to resolve them. There are conceivable solutions. For example, bringing the PMI's in on the working out of laboratory models.

The CNET could also set up preindustrialization workshops, as certain public-sector laboratories have already done. Or it could subcontract for market studies on the products to be actualized, before releasing the technology to the PMI's. It is also conceivable that organizations--technology centers, for example--could serve as intermediaries between the CNET and the PMI's to carry out the necessary industrial or marketing studies.

1304

1300: 1500 2254

## THOMSON DIVISION STEPS UP UNDERWATER DETECTION DEVELOPMENT

Paris ELECTRONIQUE ACTUALITES in French 14 May 82 pp 1,10

[Article by G. Bidal]

[Text] Sophia-Antipolis--Discreet because it is associated with the most strategic possible military activity, the Underwater Activities Division (DASM) of Thomson-CSF is nevertheless becoming increasingly large, and should exceed one-half billion francs next year. Installed only recently in a new building in Sophia-Antipolis near Nice, two steps away from the brand new department for Specialized Acoustic Techniques, which is currently being installed, and which is responsible for surface acoustic wave components, DASM has a simple goal: to be involved in all aspects of underwater detection.

In recent years, the Thomson-CSF DASM has undergone a significant volume development of more than 15 percent per year since 1978. Since that time, the personnel has grown from 900 to 1400, distributed in four centers at Cagnes-sur-Mer, Brest, Bordeaux, and in the last few months, Sophia-Antipolis, in a new 8000 square-meter center. Two months ago (see ELECTRONIQUE ACTUALITES of 19 February), a new installation was added at Valbonne to house the newly-formed department for Specialized Acoustical Techniques. This department is dedicated to the development of surface wave components, historically associated with underwater activities, even though a large portion of the department's products will fill other needs (telecommunications, radar processing), but essentially within the Detection Systems group.

The division, whose 1981 turnover was about 330 MF, expects to reach 400 MF this year and exceed one-half billion francs in 1983. About half of its activity is oriented toward exportation. Almost all of the division's products are for military use, hence the great secrecy, with only some 5-10 percent of its turnover being achieved in such sectors as oceanography or offshore oil exploitation. Within Thomson-CSF, however, its strategic importance is greater than that of its turnover alone, to the extent to which the equipment of submarines, as well as of surface ships, patrol planes, and helicopters, concerns almost all the divisions of the group, from which this division cannot be separated. While DASM has been primarily a supplier of "acoustical" products, it has tended, especially since the launching of the latest SNLE's, to become responsible for the construction of complete systems or subsystems. This, according to Mr Claveloux, director of the division, implies the "wish to be involved in all aspects of this domain."

## The Eledone Family

The largest portion of the division's income, more than one-third of the turnover, comes from submarine equipment. After having supplied all the active sonar transmitters for the French navy, Thomson developed a family of integrated sonars which could be called multifunctional, the Eledone family. The same group of modular equipment will integrate all the sonar functions of a submarine: passive listening panoramic watch, with automatic tracking circuits capable of handling up to 12 simultaneous tracks; directive emission telemetry, receiving being provided by the passive listening receiver; interception of enemy sonar emissions with automatic detection; processing of data from various sensors for analytical tactical presentation; and even fire control for torpedo guidance. The passive listening antenna has 32 or 64 columns of hydrophones, from which are extracted 128 pretuned channels, and pursuit channels for 4-12 simultaneous targets, with a goniometry of one-tenth of a degree. The Eledone system underwent its sea trials last year, and about 20 units have been ordered by five European navies.

In the area of sonar systems for surface ships, starting with the Duba 25 or Diodon type of panoramic sonars (the Piranha type of directive sonars are obsolete today), Thomson-CSF developed a new line based on standard modules: acoustical bases of the Diodon type in the 10-14 kHz band or of the Tarpon type in the 7.5-10 kHz band; new antennas, of which one with 24 columns in the 20-30 kHz band, and one with 48 columns in the 5-7 kHz band; transmitters with powers in the 8 KVA to 80 KVA (Tarpon) range; receivers with 48 pretuned channels, coherent signal processing, and a compression ratio that improves by 6-fold the speed performance of the previous generation. But the progress is probably most spectacular in operator assistance and data processing: assistance in detection, classification, and sorting, coherence determination which makes it possible to eliminate false alarms, and high resolution color display, including a synthesized "tracing" of moving objects.

Another important activity of the division, based in Bordeaux, is the production of acoustical systems for ASM fighter planes. The major contract in process is the detection system of the Atlantic New Generation (SADANG), based on the processing of data from launched acoustical buoys and radio communication with the plane. In addition to the on-board processing facilities for the ANG, and soon for helicopters, Thomson-CSF manufactures two types of buoys for passive omnidirectional listening (between 10 and 2400 Hz).

## War on Mines: Magnetic Immunity

Another large field in which the division achieves nearly one-third of its turnover, is mine warfare: Thomson-CSF produces the EP 30 training mine used by the French Navy, and developed with its collaboration.

But a relatively new area is currently opening up for the division, with magnetic immunity systems, since magnetic sensors are the most widely used sensors to detonate mines. The contribution of electronics in this area is primordial, since it becomes a matter of controlling the intensity of magnetic counter-loops distributed about a ship's structure, and created by amplifiers. One example is Thomson-CSF's IMAIP 3 immunity system for the "tri-lateral" mine sweeper (built in

France in cooperation with Belgium and Holland). The system will be mass produced in Belgium. It is composed of a triaxial magnetometer developed by Thomson-CSF, and of a control chassis carrying 100 W amplifiers. The same technology is used with higher powers (up to 30 kW) for steel-hulled ships, with reductions in magnetic signature reaching a factor of 4-10.

#### A Study Contract for the United States Navy

At last, still on the topic of mine sweepers, we must mention the construction by DASM of specific sonars and mine classification systems: these are the IBIS III, which was used for the same tri-lateral mine sweeper program, with simultaneous detection and localization; and IBIS V, a single-operator system which allows sequential detection and classification for smaller ships. Thomson is also studying a new generation lateral-type towed sonars, designed to detect, up to a depth of 300 m, new types of bottom or anchor buoy mines placed on the continental shelf. In addition to the tri-lateral program, which involves 40 ships, Thomson-CSF was hired by two navies for the IBIS V system, and in particular has received a development contract from the United States Navy to study, in collaboration with Raytheon, a submerged sonar for the American AMSS mine sweeper program.

11,023  
5500/2243

## MATRA STRIVES TO BE TOP DOMESTIC PRODUCER OF TERMINALS

Paris ZERO UN INFORMATIQUE HEBDO in French 17 May 82 p 30

[Article by Eric Sorlet]

[Text] After a period of silence, Matra has just unveiled the activities of its telecommunications branch, in France as well as abroad. Resolutely committed to a strategy of accelerated development for telematics terminals (videotex and teleinformatics) this branch has set itself the goal of becoming the sector's top French producer. Recent cooperation agreements with Tymshare on the American continent lend support to this ambition.

Matra's telecommunications branch, composed of Matra's telecommunications sector, the subsidiaries of the Sofimatel holding company--Temat/Sidep and Telephone Picart Lebas--and Peritel, has achieved a turnover of 730 MFF in 1981, for a growth of 35 percent over 1980. The turnover expected for 1982 is 930 MFF.

The year 1981 was marked by the industrial reconversion of production centers (particularly those of the Temat subsidiary, responsible for the production of terminals), by the introduction of new products (terminals, electronic automatic switch gear, and private radiotelephones), and by a strengthening of the commercial structure; today, the telecommunications branch is concentrating on teleinformatic networks/systems, and on three types of products: small capacity private switch gear (25 percent of the French market); private radiotelephones (20 percent of the French market); and especially terminals, for which the stated objective is to become the leading French producer by making 2 million telephone stations per year (50 percent of the French market), by gaining a significant position in peripheral telephony, and especially by becoming the largest supplier of videotex and teleinformatics terminals for the international and private market.

The annual turnover generated by the latter activity should be around 500 MFF in 1985, which corresponds to the sale of some 500,000 terminals.

These figures do not incorporate potential PTT markets. In this connection, Philippe Sola, head of the telecommunications branch, said that "Matra is not entertaining the possibility of not being included in DGT (General Directorate for Telecommunications) consultations" for supplying Minitel-type videotex terminals.

### Distribution Agreement with Tymshare

An international division headed by Bastiaan Rohrer has been formed to develop the exportation of terminals to priority targets, particularly on the American continent and in the Middle East.

One year after signing a firm contract for the sale of 100,000 telematics terminals to Tymshare (for a figure of 180 MFF), Matra announces that it has signed with Tymshare, an exclusive distribution agreement for North America, with provisions for the delivery of 71,000 additional terminals by 1985, and beyond this, for possible orders involving nearly 389,000 additional units. In addition to this agreement, a joint distribution company is being formed, the Tymshare Matra Corporation (TMC), 70 percent of whose capital will be held by the American firm.

The terminal developed for Tymshare has been marketed in the United States since February under the name of Scanset. Two models are available: the 410 without a modem, priced at 495 dollars, and the 415 integrated terminal with a modem, priced at 649 dollars. A 720 model incorporating the telephone equipment will also be offered.

One thousand units have been delivered, and production continues at the rate of 5000 units per month at the two Temat plants in Brittany.

Contrary to what is generally asserted, these are not videotex terminals but teleinformatics terminals (ASCII standards). By the end of the year, Matra should introduce a French version of Scanset, priced at about 4000 FF.

The choice of ASCII does not mean that Matra does not believe in videotex, but that this market is not yet considered as ready. A mixed ASCII/videotex version is nevertheless planned for the end of the year. As for strictly videotex terminals, their mass production is not planned until the more distant future.

At the international level, Matra has also obtained a contract in Brazil with Telesp, to supply 2500 terminals intended for a trial project in Sao Paulo, like the one in Velizy.

In addition, the French firm has answered the call for bids from the Kuwait Ministry of Communications, for a network of 3000 terminals (with possible expansion to 10,000). The value of this contract is said to be of the order of 10 MFF.

Negotiations are also underway in Latin America, more specifically in Venezuela, Argentina, and Colombia; in South Africa, where terminals compatible with the British Prestel system have been introduced; in Australia; and in the Near East.

11,023

1981-1001/2243

## CIT ALCATEL, INDIA SIGN FR 3 BILLION CONTRACT

Paris LES ECHOS in French 17 May 82 p 7

[Article by J. J]

[Text] A good weekend for the national telecommunications industry. CIT-Alcatel (CGE group) is getting ready to walk away with a "supercontract" of over 3 billion francs. This is because a common doctrine has blithely moved between the Francois Mitterrand and Indira Gandhi brands of socialism, giving France the advantage of transferring technology from an industrialized nation to a developing one, in the name of emancipation.

This doctrine arose from an agreement which made it possible to eliminate the largest telephone manufacturers in the world, whether English (General Electric, Plessey, STC), American (ATT and ITT), Japanese (Nippon Electric), German (Siemens), or Swedish (LM Ericsson). A government-to-government framework agreement officially consecrates the new form of cooperation between Paris and New Delhi. The other countries cannot get over it and are raging at the sight of France winning an 8 billion franc grand slam in India, since 5 billion fell into Dassault's purse a few weeks ago, with the licensed manufacture of some 40 Mirage-2000 planes.

The political and industrial activity to facilitate this success has been intense. Did not Jean-Pierre Chevenement visit India, followed some time later by Jacques Attali? What they had to say was simple: "We are ready to help you become a great economic power by providing you with equipment, plants, and even more importantly, our know-how." A seductive enough proposition for Indira Gandhi at a time when she wants to strengthen her political clout in South-East Asia in the face of awkward neighbors like the Soviet Union and China, and of the ambitions of some border countries like Pakistan.

## Call for Bids for an Additional 3 Billion Contract

This is why CIT-Alcatel will not merely deliver 200,000 "all-electronic" telephone lines and 20,000 interurban circuits. There currently are 1.7 million stations operating for 650 million inhabitants. A production center with a capability of 500,000 lines will be erected thanks to French technology for a total figure of 1 billion francs. In a second phase, two other units of 250,000 lines to be installed and modernized in the city of Hosur will cap the expansion program for India's telephone network. The bill comes to 2.2 billion.

The industrial agreement is complemented by cooperation between CNET (PTT Research Center) and Indian researchers, by technical assistance and PTT training, and by easy credit: Paris agreed to an average rate of 7.5 percent, which will inevitably cause the Americans to protest once more.

But for political and strategic reasons, France was absolutely determined not to lose this telecommunications market which is one of the world's last large one. The fact is that India is only at an initial stage. A call for bids has been issued for a second contract of the order of 3 billion francs. The responses will be opened on 31 March 1983. And today's losers already fear becoming tomorrow's as well.

11,023

CSO: 5500/2243

FRANCE

BRIEFS

THOMSON DEVELOPS MULTIFUNCTION COMMUNICATIONS--Thomson-CSF has just disclosed that its Telecommunications Division is currently developing under a French government contract, transmitters-receivers for a multifunctional integrated system for tactical communications, which in addition to communications makes it possible to locate and identify transmitting stations. This system, called Sintac, operates in the L-band. It is similar to the American system JTIDS (Joint Tactical Information Distribution System), which is being manufactured and with which it will be compatible. It will be usable for all tactical mobile connections for the three branches of the armed forces, and in particular for surface ship-plane communications. [Text] Paris ELECTRONIQUE ACTUALITES in French 14 May 82 p 10] 11,023

CSO: 5500/2243

END

**END OF  
FICHE  
DATE FILMED**

August 2, 1982